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Rhodora

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the early volumes, with few illustrations, or to make the price somewhat nearer the actual cost above the funds of the sponsor, the New England Botanical Club, and the guarantees from institutions most using the journal. After careful study of the problem, the second alternative has been chosen. It is, therefore, necessary to announce that

BEGINNING WITH VOL. 47 (1945) THE ADVANCE SUBSCRIPTION-PRICE OF RHODORA WILL BE FOUR DOLLARS ($4.00) A YEAR.—EDS.

SHRUBS OF MICHIGAN.—The Cranbrook Institute of Science has published a very attractive and neatly illustrated handbook on Michigan Shrubs, prepared by Cecil Billington.[1] The book is bound to be interesting and helpful to beginners, for the text is clear and the drawings accurate. After the user has passed the initial stage and begins to be a scientist he will regret that it was decided to take no cognizance of progress (therefore change) in our knowledge of the flora of eastern North America since 1908. In the 36 years following that date the International Rules of Botanical Nomenclature have been completely revised, the *homonym* rule now in force necessitating many upsets of once familiar names. Furthermore, this period has seen the most searching and critical study of our flora. The user of the new book will consequently regret that these revisions and corrections of errors have not been taken into account. In fact, the author shows some dissatisfaction and registers a healthy spirit of inquiry on p. 221, when he says: "The nomenclature of the Snowberry is sadly mixed and should be studied and stabilized." Had he checked on RHODORA, xvi. 117–119 (1914) he would have found the record of such study and stabilization with the resultant name *Symphoricarpos albus* (L.) Blake. In fact, the pages of the present journal demonstrate in monographic studies a vast number of necessary changes. In these pages, too, are recorded more than 25 shrubs of Michigan which do not appear in the Cranbrook volume. Their omission is of course covered by the statement in the Introduction, that "This bulletin is not intended as a catalog of every species of shrub which has been described from Michigan." It is hoped, however, that a future edition of an attractive and useful book will recognize the importance of being more up-to-date, that the positive errors of the past will not be further perpetuated and that the admitted "Rare or Infrequent Species", which now include some which are found only on distant Isle Royale, will be liberalized to include from that Island the beautiful *Salix pellita* (see RHODORA, xxvi. 143) and such shrubs of the mainland as *Amelanchier florida, laevis, huronensis* (type from Michigan), *Rosa michiganensis*, the unique, black-fruited, western North American *Crataegus Douglassii* (wholly distinct from the complex red-fruited series) and the even more isolated and rather startling *Ceaenothus sanguineus* (see RHODORA, xvii. 229 and 230, and xxvii. 209 and 210, map 6).

The author and the Cranbrook Institute have made a good beginning. It is surely to be hoped that they will go on from this and recognize the importance of making their book a model by including all the species of the state, by most carefully checking their identities and by bringing the nomenclature to date.—M. L. F.

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[1] CECIL BILLINGTON, *Shrubs of Michigan*. Cranbrook Institute of Science, Bull. no. 20. 250 pp., colored frontispiece, 161 line-drawings, 161 maps of local distribution, and illustrated glossary. Cranbrook Institute, Bloomfield Hills, Michigan, 1943. $2.50.

RHYNCHOSPORA, SECTION EURHYNCHOSPORA, IN CANADA, THE UNITED STATES AND THE WEST INDIES

SHIRLEY GALE

(*Continued from page 249*)

Series 11. **Caducae,** ser. nov. Cymis decompositis saepissime valde fasciculatis patentibus corymbiformibus: spiculis 1–10 (semper fere 4–5)-carpis: squamis laxe imbricatis: setis 1–6 antrorse serrulatis saepissime validis (*R. perplexa* et *R. microcarpa* exceptis): achaenio elliptico-obovato vel late obovato vel suborbiculari saepissime rugoso cancellato vel striato, obscure marginato.

Growing in damp depressions, swamps, pond-margins and shallow water of the pine barrens, savannas and open woodland of the Coastal Plain; infrequent inland; also in the West Indies. Caespitose: leaves 1 (rarely)–7.5 mm. wide: culms of well developed specimens approximately 1 m. high, usually erect, becoming flexuous toward the summit, less often weakly ascending: cymes decompound, those of most species corymbiform, densely fasciculate, less often weakly spreading and with few spikelets or forming a globose net in *R. miliacea:* spikelets containing 1–mostly 4–5 (less often 6–10) achenes: scales loosely imbricate: bristles usually well developed (1–3 and rudimentary in *R. perplexa*), antrorsely serrulate: achenes elliptic-obovate to broadly obovate or suborbicular in outline, usually ridged, always cancellate or striate, obscurely marginate: tubercle basally deltoid.—*Rhynchospora* V. *Glomeratae* Small, Man. 175 (1933), in part. *Rhynchospora,* Series B. *Diplostyleae,* Sect. 5. *Glaucae* Clarke in Urban, Symb. Ant. ii. 106 (1900), in part.

KEY TO SPECIES IN SERIES CADUCAE

a. Bristles equalling or exceeding the achene. . . .*b.*
  b. Achene slenderly ellipsoid-obovoid, 2–2.2 mm. in length 60. *R. inexpansa.*
  b. Achene slenderly to broadly obovoid or subglobose, less than 1.8 mm. in length. . . .*c.*
    c. Branchlets of the 6–9 cymes stiffly divaricate or reflexed, giving the appearance of a loose web; achene pale yellow-brown. . . . . .61. *R. miliacea.*
    c. Branchlets of the 2–5 cymes ascending to spreading, if divaricate never stiffly so; achene castaneous. . . .*d.*
      d. Achenes broadly obovate to suborbicular in outline, umbonate or swollen above, compressed below, 1.2 mm. wide or wider, 1.4 mm. long or longer. . . .*e.*
        e. Achenes striate, castaneous, 1.4–1.6 mm. wide, 1.4–1.7 mm. long, with a definite nearly terete stipe which is 0.3–0.4 mm. in length; stamens conspicuously marcescent. . . . . .62. *R. odorata.*

e. Achenes plainly cancellate, 1.2–1.6 mm. wide, 1.4–1.6 mm. long, with a short thick inconspicuous stipe; stamens not conspicuously marcescent. . . . 63. *R. caduca.*

d. Achenes slenderly obovate or, if obovate to suborbicular in outline, small, gradually biconvex and not conspicuously swollen above, 0.8–1.2 mm. wide, 1–1.4 mm. long. . . . *f.*

f. Cymes loose, spreading, the lax filiform branchlets widely divergent; spikelets few. . . . *g.*

g. Bristles well exceeding the tubercle; tubercle deltoid-attenuate with setose margins. . . . . 64. *R. mixta.*

g. Bristles equalling the achene; tubercle deltoid, somewhat decurrent, the margins bare. . . 65. *R. decurrens.*

f. Cymes congested, corymbiform, the filiform branchlets ascending; spikelets numerous. . . . *h.*

h. Achenes flat, the short transverse walls of the narrowly oblong alveoli pulled up into sharp ridges: bristles irregularly spreading. . . . 66. *R. schoenoides.*

h. Achenes moderately biconvex, the alveoli subisodiametric to broadly oblong, rugulose to only slightly ridged; bristles usually stiffly erect and closely connivent around the achene. . . . 67. *R. microcarpa.*

a. Bristles shorter than the achene or failing. . . . *i.*

i. Achene strongly flattened, prominently ridged, striate. . . . *j.*

j. Bristles 6, not exceeding ⅔ the achene; transverse ridges of the achene approximately 12, closely spaced; tubercle decurrent; spikelets 4 mm. long. . . . . 68. *R. Torreyana.*

j. Bristles none or 1–3 rudiments; transverse ridges of the achene less than 8, widely separated. . . . . 69. *R. perplexa.*

i. Achene biconvex, slightly if at all ridged, the alveoli subisodiametric to broadly oblong. . . . . 67. *R. microcarpa.*

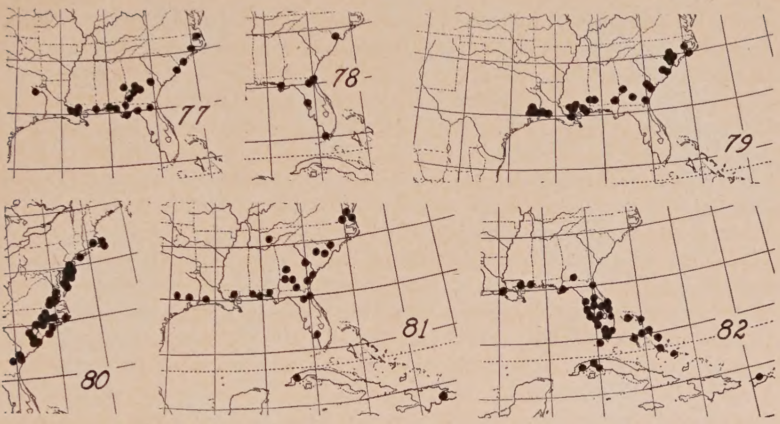
60. R. INEXPANSA (Michx.) Vahl. Caespitose, often forming stools of several–15 culms: leaves flat, 2–3.5 mm. wide; margins finely serrulate; tips triquetrous: culms obtusely triangular, becoming slender, flexuous, 0.3–1.2 m. high: inflorescence 3–6 strictly elongated decompound fasciculate cymes, 0.6–1 dm. in length, the filiform arching branches approximate; lateral cymes on exserted peduncles: spikelets fusiform, sessile or pedicellate, strongly ascending, 2–5-flowered, 1–4-fruited, 4.5–6 mm. long: scales castaneous, acute or aristulate, caducous: bristles 6, upwardly hispidulous, capillary, erect, once again as high as the tubercle: achene slenderly ellipsoid-obovoid, narrowing toward the base, extremely flattened, transversely ridged, castaneous, 0.8–1 mm. wide, 2–2.2 mm. long: tubercle deltoid, compressed, 0.9–1.2 mm. long, pale, with thickly setose margins. PLATE 833, FIGS. 1A and 1B; MAP 75.—Enum. ii. 232 (1806); Elliott, Sk. Bot. S. Car. and Ga. i. 61 (1816); Gray, Ann. Lyc. N. Y. iii. 200, pl. 6, fig. 6 (1835) and Man. ed. 2, 505 (1856); Chapman, Fl. So. U. S. 525 (1860); Britton & Brown, Ill. Fl. i. 280, fig. 660 (1896); Britton, Man. 186 (1901); Small, Fl. 198 (1903) and Man. 186 (1933); Robinson & Fernald in Gray, Man. ed. 7: 200, fig. 318 (1908). *Schoenus inexpansus* Michaux, Fl. Bor.-Am. i. 35 (1803);

Muhlenberg, Descrip. Gram. 9 (1817). *Phaeocephalum inexpansum* House, Am. Midland Nat. vi. 202 (1920).—Common in low or exsiccated ground in open areas of pinelands on the Coastal Plain from southeastern Virginia to Georgia and west to eastern Texas; inland localities in northern Alabama, northwestern Arkansas and along the Red River. Citation of specimens of this unique and well known species is not considered necessary in this paper.

61. R. MILIACEA (Lam.) Gray. Stoloniferous: leaves narrowly linear, 6–7.5 mm. wide, erect, flat, carinate; the keel and margins scabrous to smooth; tip triquetrous: culms 3-angled, leafy, slightly arching or more commonly stiffly erect, 0.9–1.4 m. high: cymes 6–9, decompound, the long wiry capillary branchlets stiffly divaricate or often reflexed, giving to the cyme a loose, web-like appearance, 0.7–1 dm. wide; lateral cymes on subexserted peduncles: spikelets ovoid, turgid, 3–4 mm. long, distant on elongated slender pedicels, 4–12-flowered, 3–10-fruited: scales aristulate, loosely imbricate, promptly caducous exposing a "spikelet" of naked achenes: bristles 6, fragile, spreading, upwardly serrulate, exceeding the tubercle: achene broadly obovoid, biconvex, transversely ridged to rugulose, longitudinally striate, pale, 0.9–1.1 mm. wide, 1–1.3 mm. long: tubercle depressed-conic, often apiculate, 0.2–0.4 mm. long. PLATE 833, FIGS. 2A and 2B; MAP 74.—Ann. Lyc. N. Y. iii. 198, pl. 6, fig. 4 (1835); Chapman, Fl. So. U. S. 526 (1860); Grisebach, Cat. Pl. Cub. 243 (1866); C. Wright in Sauvalle, Anal. Acad. Ci. Habana viii. 84 (1871) and Fl. Cub. 179 (1873); Small, Fl. 198 (1903) and Man. 186 (1933); Britton, Mem. Soc. Cubana Hist. Nat. ii. 199 (1916); Kükenthal, Fedde Rep. Spec. Nov. xxiii. 211 (1926). *Schoenus miliaceus* Lamarck, Ill. Gen. i. 137 (1791). *R. sparsa* Vahl, Enum. ii. 230 (1806); Elliott, Sk. Bot. S. Car. and Ga. i. 62, pl. 2, fig. 1 (as *Schoenus*) (1816); Torrey, Fl. N. and Mid. St. no. 1: 56 (1823); Clarke in Urban, Symb. Ant. ii. 131 (1900). *Schoenus sparsus* Michaux, Fl. Bor.-Am. i. 35 (1803); Muhlenberg, Descrip. Gram. 7 (1817). *Phaeocephalum miliaceum* (mispelled *milaceum*) House, Am. Midland Nat. vi. 202 (1920).—Often standing in water of swamps of the Coastal Plain from southeastern Virginia and North Carolina (rarely) southward to the Florida Peninsula, and west to Louisiana; also in the western provinces of Cuba and in eastern Hispaniola. VIRGINIA: *Read* (P, as "*Schoenus sparsus*"), presumably from Norfolk Co. NORTH CAROLINA: swamp at Newport, Carteret Co., *Godfrey*, no. 4412 (D, G); peaty grass-sedge savanna at Carolina Beach, New Hanover Co., *Godfrey*, no. 4684 (G, NC); edge of swamp, Southport, Brunswick Co., Jan. 28, 1922, *Bartram* (G, P). SOUTH CAROLINA: swamp, 1½ miles west of Andrews, Georgetown, Georgetown Co., *Godfrey & Tryon*, no. 541 (G, NY);

wet places along Santee Canal, Berkeley Co., *Ravenel* (G). Carolina: in umbrosis Carolinae, *Michaux Herb.* (G, type-photo of *Schoenus sparsus*); east Carolina, *D. Fraser in Herb. Leonard* (G, TYPE-PHOTO of *Schoenus miliaceus*). Georgia: shaded pool of clear cold water, Leslie, Sumter Co., *Harper*, no. 1017 (G, NY, US); semi-calcareous swamp of small creek about ½ mile east of Cedar Springs, Early Co., *Harper*, no. 3635 (G, P, US). Florida: swamps near Jacksonville, Duval Co., *Curtiss*, no. 3163 (CU, D, G, NY, P, US); Devils Mill Hopper, lime-sink near Gainesville, Alachua Co., *O'Neill*, no. 586 (US); rooting under water, Silver Springs, Marion Co., *O'Neill*, no. 2606 (CU); damp places, Ormond, Volusia Co., *Fuller* (G); Eustis, Lake Co., *Nash*, no. 1845 (G, NY, P, US); in mud of bog in open woods near Oviedo, Seminole Co., *Correll*, no. 6361 (CU, D, G); in moist woodland, south of Aripeka, Hernando Co., *Moldenke*, no. 1065 (D, NY); rooting under water in a spring, pasture hammock, Lake Jovita, Pasco Co., *O'Neill*, no. 1060 (CU, US); swamp, between Shingle and Bonnet Creek, Kissimmee, Osceola Co., Mar. 13, 1938, *Singletary* (D); in a swamp, Polk City, Polk Co., *O'Neill*, no. 7682 (CU); sand-barren swamps, Tampa, Hillsborough Co., Apr. 11, 1923, *Churchill* (G); the Okaloacoochee Slough, Big Cypress, Lee Co., *Small*, no. 8311 (NY); in everglades near Camp Long View, Dade Co., *Small & Wilson*, no. 1644 (NY); bogs and deep miry places, Apalachicola, Franklin Co., *Chapman in Biltmore Herb.*, no. 231a (G, NY, US). Alabama: deep shaded springy places, eastern shore, Mobile Bay, Point Clear, Baldwin Co., June 10, 1879, *Mohr* (US). Louisiana: abundant in cypress-tupelo swamp, Rone Ferry on Tickjaw River, Livingston Parish, *Brown*, no. 6573 (La); New Orleans, 1832, *Drummond* (G); sandy ditch near swamp in northern vicinity of Houma, Terrebonne Parish, May 1, 1913, *Wurzlow* (US); pine swamps, Calcasieu Parish, April, 1870, *Featherman Collection* (La); marshes, Alexandria, Rapides Parish, *Herb. Thurber* (G). Cuba: Santo Tomas, Cienaga de Zapata, Santa Clara, *Acuña*, no. 4305 (NY); in coastal swamps, in a wood of Peralta Estate, Batabano, Havana, *León*, no. 14195 (NY); *Wright*, no. 3788 (G, US). Hispaniola: Macary in Etang Promosse, Marigot, Massif de la Selle, Haiti, *Ekman*, no. 5978 (NY, US).

62. R. odorata C. Wright ex Griseb. With short stolons: leaves 3.5–6 mm. wide, arching, carinate, smooth, becoming triquetrous at the tip, with finely serrulate angles: culms stocky, becoming flexuous at the summit, 3-angled, smooth, 0.7–1.8 m. high: cymes 3–4, decompound, densely fasciculate, 3–4 cm. wide, 3–7.5 cm. long; branchlets mainly arched-ascending: spikelets ovoid, 3–11-flowered, 1–7-fruited, 6–9 mm. long: scales acute-aristate, loosely imbricate, ferruginous, caducous:



Range of 77, Rhynchospora mixta; 78, R. decurrens; 79, R. schoenoides; 80, R. Torreyana; 81, R. perplexa; 82. R. microcarpa.

stamens conspicuously marcescent: bristles 6, irregularly ascending to spreading, slenderly attenuate, usually well exceeding the tubercle, upwardly serrulate, 3.2–4.2 mm. long: achene orbicular in outline, strongly biconvex, transversely ridged and strongly marked by longitudinal striae, castaneous, 1.4–1.6 mm. wide, 1.4–1.7 mm. long, with a conspicuous persistent stipe, 0.3–0.4 mm. long: tubercle deltoid-compressed, somewhat depressed, usually dark with setose margins. Plate 833, figs. 3A and 3B; Map 73.—Cat. Pl. Cub. 242 (1866); C. Wright in Sauvalle, Anal. Acad. Ci. Habana, viii. 83 (1871) and Fl. Cub. 179 (1873). *R. stipitata* Chapman, Fl. So. U. S. ed. 2: 660 (1883); Hemsley, Rep. Sci. Res. Voy. Challenger, Bot. i. 76, pl. 10 (1885); Clarke in Urban, Symb. Ant. ii. 129 (1900); Small, Fl. 198 (1903) and Man. 186 (1933); Britton, Fl. Bermuda, 53, fig. 82 (1918). *R. Mariscului* sensu Clarke in Urban, Symb. Ant. ii. 132 (1900), in part. *R. Mariscului* sensu Britton, Mem. Soc. Cubana Hist. Nat. ii. 200 (1916), in part, excl. syn. *R. jubata* Liebm. *R. Mariscului* sensu Britton & Millspaugh, Bahama Fl. 56 (1920); non Lindl. et Nees in Mart. *R. caduca* sensu Kükenthal, Fedde Rep. Spec. Nov. xxiii. 210 (1926) and xxxii. 77 (1933); non Ell. *Phaeocephalum stipitatum* House, Am. Midland Nat. vi. 202 (1920).—Swamps of the Coastal Plain from North Carolina (one collection from Carteret Co.) to the Florida Peninsula, Bermuda, New Providence of the Bahamas and the Greater Antilles. North Carolina: sand banks near Beaufort, Carteret Co., *Lewis*, no. 76 (NY). Georgia: *Baldwin* (P). Florida: low rich places near Jacksonville, Duval Co., *Curtiss*, no. 3141 (P); swamp near Mosquito Inlet, Volusia Co., *Curtiss*, no. 3174

(CU, G, NY, US); swamp, 7 miles southeast of Ft. Christmas, east of Orlando, Orange Co., June 25, 1927, *O'Neill* (CU); wet thicket, Eau Gallie, Indian River, Brevard Co., *Curtiss*, no. 5719 (G, NC, NY, US); roadside, low ground, Deer Park Section, Osceola Co., Apr. 28, 1938, *Singletary* (D); flatwood ponds, Myers, Lee Co., *Hitchcock*, no. 419 (G, NY, US); Miami, Dade Co., *Tracy*, no. 8987 (C, NY, US); Arch Creek Prairie, Dade Co., *Small, Mosier & Small*, no. 6776 (NY); along canal, 2 miles west of Pine Crest in the Everglades, Monroe Co., *O'Neill*, no. 7647 (D, NY, P). Bermuda: Devonshire Marsh, *Brown & Britton*, no. 94 (G, NY, US). Bahamas: near Nassau, New Providence, *Curtiss*, no. 170 (G). Cuba: La Punta de la Jarela, jurisdiccion Guane, Pinar del Rio, Dec. 23, 1863?[1], *Wright*, no. 3394 (G); in coastal marshes, Cienaga de Gamboa, Pinar del Rio, *Ekman*, no. 17584 (NY); *Wright*, no. 3787 (G, NY, US; cited by Wright in Sauvalle.); somewhat moist places at "Loma Vista," Nueva Gerona, Isla de Pinos, *Ekman*, no. 12374 (US); savanna, Rio de los Casas, Isle of Pines, *Britton & Wilson*, no. 15662 (NY, US); lagoons of Santa Fé, northeast of Stabo, Matanzas, *Roca & Edmond*, no. 9635 (NY); Sabana Guane, Caibarien, Santa Clara, *Fernando*, no. 480 (NY); Cienfuegos and vicinity, Santa Clara, *Cuesta*, no. 764 (NY); al norte de la Bahia de Cochinos, Santa Clara, *León & Loustalot*, no. 9506 (NY). Jamaica: marsh, 1 mile west of Black River, Cornwall, *Britton*, no. 1356 (NY); border of Great Morass, Negril and vicinity, Cornwall, *Britton & Hollick*, no. 2116 (NY). Hispaniola: coastal swamp at Carbarete, Tosua, prov. Puerto Plata, Cordillera Septentrional, Santo Domingo, *Ekman*, no. 14535 (G, NY, US). Puerto Rico: Point Congrejos, *Stevenson*, no. 1706 (NY, US).

63. R. caduca Ell. Spreading by means of short stolons, occasionally forming dense stools: leaves 4–7 mm. wide, flat, slightly carinate, mainly ascending; tips triquetrous, with minutely scabrous angles: culms robust, acutely 3-angled, erect, becoming flexuous at the summit, 0.7–1.2 m. high: cymes 3–5, decompound, strict, 0.5–1.2 dm. long, usually densely fasciculate and often arching, but attenuated specimens occurring with scattered spikelets on weak, spreading branchlets: spikelets ovoid, fasciculate and sessile or single and slenderly pedicellate, 3–6-flowered, 2–5-fruited, 4–4.5 mm. long: scales acute to aristulate, caducous, dark brown, loosely imbricate: bristles 6, brittle, well exceeding the tubercle, upwardly hispidulous: achene obovate to rotund in outline, strongly umbonate, 1.2–1.6 mm. wide, 1.4–1.6 mm. long; entire surface cancellate with the horizontal walls of the oblong alveoli contiguous, accentuated and forming horizontal ridges: tubercle deltoid, compressed and slightly depressed, usually pale, setose, 0.6–0.8 mm. in height. Plate

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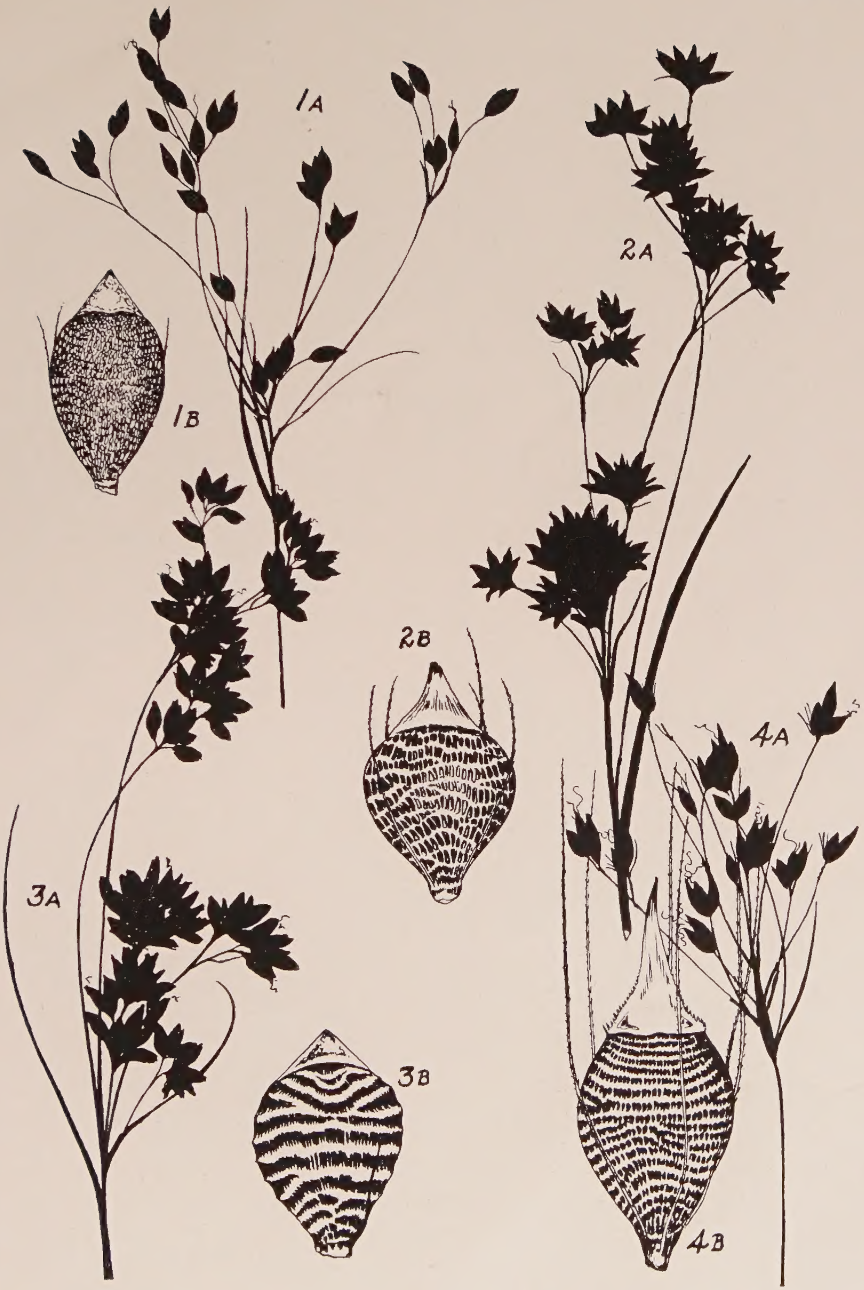
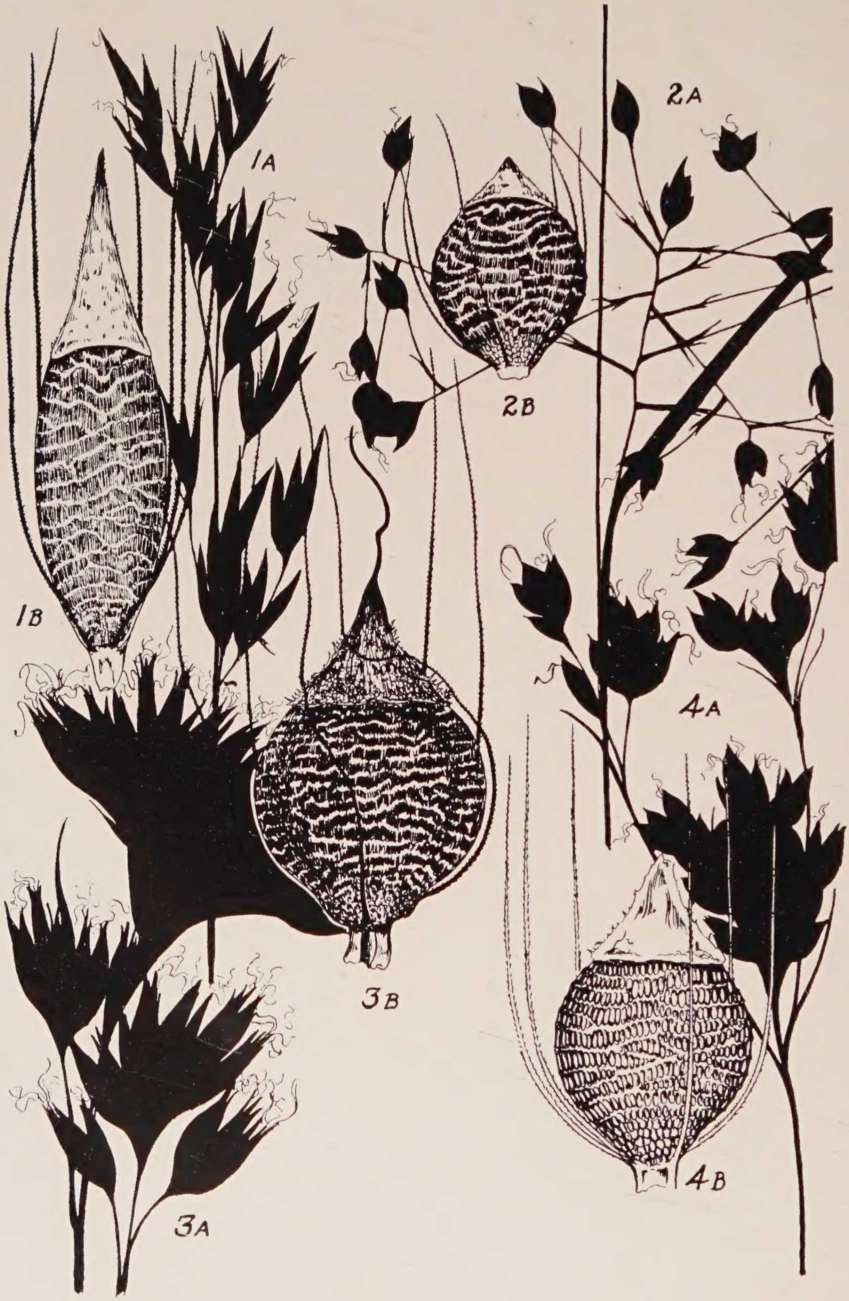
[1] See Underwood, Bull. Torr. Bot. Cl. xxxii. 297 (1905).



S. G. del.

Rhynchospora decurrens: fig. 1A, portion of inflorescence, × 2; fig. 1B, achene, × 20.
R. microcarpa: fig. 2A, portion of inflorescence, × 2; fig. 2B, achene, × 20.
R. perplexa: fig. 3A, portion of inflorescence, × 2; fig. 3B, achene, × 20.
R. mixta: fig. 4A, portion of inflorescence, × 2; fig. 4B, achene, × 20.



S. G. del.

Rhynchospora inexpansa: fig. 1A, portion of inflorescence, × 2; fig. 1B, achene, × 20.
R. miliacea: fig. 2A, portion of inflorescence, × 2; fig. 2B, achene, × 20.
R. odorata: fig. 3A, portion of inflorescence, × 2; fig. 3B, achene, × 20.
R. caduca: fig. 4A, portion of inflorescence, × 2; fig. 4B, achene, × 20.

833, FIGS. 4A and 4B; MAP 76.—Sk. Bot. S. Car. and Ga. i. 62 (1816); Gray, Ann. Lyc. N. Y. iii. 199, pl. 6, fig. 5 (1835); Chapman, Fl. So. U. S. 526 (1860); Small, Fl. 197 (1903) and Man. 185 (1933). *R. patula* Gray, Ann. Lyc. N. Y. iii. 201, pl. 6, fig. 8 (1835), for the most part. *Phaeocephalum caducum* House, Am. Midland Nat. vi. 201 (1920).—Frequent in meadows and marshes on the Coastal Plain from southeastern Virginia south to Florida and west to eastern Texas; known inland only from a few localities in the mountains of Georgia and Alabama and in northwestern Arkansas. VIRGINIA: border of damp sandy pine woods east of Gloucester, Gloucester Co., *Fernald & Long*, no. 8613 (G, P); border of pond-hole in woods east of Hornsby (Tampico), York Co., *Fernald & Long*, no. 8611 (G, P); inner border of brackish to fresh marsh along Back Bay at eastern margin of Long Island, Princess Anne Co., *Fernald & Long*, no. 10555 (G); boggy swale by Northwest River, near Northwest, Norfolk Co., *Fernald, Griscom & Long*, no. 4578 (G); swaley tidal shore of Nottoway River, Knight Seine Beach (Battle Beach), Southampton Co., *Fernald & Long*, no. 10148 (G, P); exsiccated argillaceous pineland, about 2 miles east of Stony Creek, Sussex Co., *Fernald & Long*, no. 8999 (G, P). NORTH CAROLINA: in boggy soil near Elizabeth City, Pasquotank Co., *Correll*, no. 2110 (D); marsh at Sligo, Currituck Co., *Godfrey*, no. 5283 (G); marsh at Edenton, Chowan Co., *Godfrey*, no. 5340 (G); meadow, Oxford, Granville Co., *Godfrey*, no. 5496 (G); damp sandy open spots, 4 miles east of Plymouth, Washington Co., *Wiegand & Manning*, no. 588 (G); sandy soil bordering Brice Creek, 2 miles southwest of James City, Craven Co., *Randolph & Randolph*, no. 865 (G); near Deep River, Lee Co., *Blomquist*, no. 5622 (D); Pender Co., June 7–12, 1899, *Ashe* (NC); drainage ditch at Carolina Beach, New Hanover Co., *Godfrey*, no. 4718 (G); woodland at Lake Waccamaw, Columbus Co., *Godfrey & Shunk*, no. 4169 (G, NC); banks of Little Long Creek, Albemarle, Stanly Co., alt. 250 ft., Aug. 17, 1892, *Small* (NY). SOUTH CAROLINA: in udis juxta Charleston, *Elliott* (G, TYPE-PHOTO); Lancaster Co., *House*, no. 2554 (US); in rich soil in hammock, Isle of Palms, Charleston Co., alt. 5 ft., *Clausen & Trapido*, no. 3567 (NY). GEORGIA: wet meadow near Middle Oconee River, Clarke Co., alt. 575 ft., *Harper*, no. 159 (NY, US); between Alcovy River and No Business Creek, Oconee and Gwinnett Cos., July 14, 1893, *Small* (G); wet woods between Sandfly and Savannah, Chatham Co., *Harper*, no. 1829 (G); in ditches bordering swamp, 14 miles south of Hawkinsville, *Svenson*, no. 6977 (G); margin of pool, Leslie, Sumter Co., *Harper*, no. 1241 (G); Albany, Dougherty Co., *Miller*, no. 502 (US). FLORIDA: low rich places, near Jacksonville, Duval Co., *Curtiss*, no. 3141 (D, G, P); flatwoods, 4 miles west of St. Augustine, St.

Johns Co., June 7, 1940, *West & Arnold* (CU); St. Vincent Island, Franklin Co., *McAtee*, no. 1820a (US); in low pineland, Lake City, Columbus Co., *O'Neill*, no. 7674 (CU); wet hammock, vicinity of Eustis, Lake Co., *Nash*, no. 139 (G); in edge of low woods near Mabel, Sumter Co., *Curtiss*, no. 6631 (G, P); swamps, Myers, Lee Co., *Hitchcock*, no. 422 (G); moist open ground, 1 mile west of Arcadia, DeSoto Co., *Blomquist*, no. 8958 (G, D); near Tallahassee, Leon Co., *Berg* (NY); Herb. Baldw. (NY, annotated as *R. patula* by Gray). ALABAMA: Auburn, Lee Co., *Earle*, no. 859 (NY); pine woods, Ball Play, Etowah Co., *Mohr* (US). MISSISSIPPI: Saratoga Co., *Tracy*, no. 8464 (G). ARKANSAS: Benton Co., *Plank*, no. 17 (NY). LOUISIANA: in prairies, Coteau Duchamps, St. Martin Parish, June 23, 1893, *Langlois* (CU, G); open field, Steele Place, Baton Rouge, East Baton Rouge Parish, *Trotter & Chilton*, no. 42 (La); low prairies, Jennings, Jefferson Davis Parish, *Palmer*, no. 7625 (CA, Mo, P). TEXAS: Palestine, Anderson Co., Apr. 19, 1895, *Plank* (NY); Orange, Orange Co., *Letterman* (Mo); Port Arthur, Jefferson Co., July 5, 1927, *Kolthoff* (P); about 5¾ miles south of Anahuac, Chambers Co., *Cory*, no. 22404 (G); Cypress City, Harris Co., *Boll*, no. 884 (G); Caney Post Office, Brazoria Co., *Bechdolt*, no. 4 (G); banks, Hempstead, Waller Co., *Hall*, no. 711 (G, Mo); Burnet, Burnet Co., Sept. 14, 1892, *Plank* (NY); prairie near Indianola, Calhoun Co., *Ravenel*, no. 159 (NY); coastal prairie, Midfields, Matagorda Co., *Tharp*, no. 2139 (US).

64. R. MIXTA Britt. ex Small. Stoloniferous: leaves 3–4 mm. wide, flat, subcarinate, becoming triquetrous at the tip; margins minutely scabrous: culms triangular, slender, becoming filiform and arched toward the summit, approximately 1 m. in height: cymes 4–6, decompound, fasciculate, 2.5–5.5 cm. wide, often extremely lax and flexuous in appearance due to the attenuated pedicels which may be strongly divergent; axillary cymes on exserted peduncles: spikelets ovoid, 2 (rarely)–10-flowered, 1 (rarely)–10-fruited, 4–6 mm. in length, commonly distant: scales mucronulate or acute, loosely imbricate, characteristically caducous, castaneous: bristles 6–8, extremely slender, brittle, well exceeding the tubercle, upwardly hispidulous, 2.2–2.8 mm. long: achene slightly compressed, otherwise slenderly obovoid, 0.8–0.9 mm. wide, 1.3–1.4 mm. long; surface pale and dull but covered with a brown isodiametric reticulation, the transverse walls of which are barely if at all elevated: tubercle deltoid-attenuate, 0.4–0.9 mm. long, compressed, with a conspicuously setose margin. PLATE 832, FIGS. 4A and 4B; MAP 77.—Fl. 197, 1328 (1903) and Man. 186 (1933). *R. prolifera* Small, Fl. 198, 1328 (1903) and Man. 186 (1933). *Phaeocephalum mixtum* House, Am. Midland Nat. vi. 202 (1920). *Phaeocephalum proliferum* House, Am. Midland Nat. vi. 202 (1920).—Swampy woodlands

of Coastal Plain from North Carolina to northern Florida and west to eastern Texas. NORTH CAROLINA: Elizabeth City, Pasquotank Co., *Kearney*, no. 1993 (US); ditch, Beaufort Co., *Blomquist*, no. 5614 (D); stream-margin, Holden Beach, Brunswick Co., *Blomquist*, no. 5614 (P). SOUTH CAROLINA: wet swampy woodland, 12 miles north of Georgetown, Georgetown Co., *Godfrey & Tryon*, no. 111 (D, G, NY, P). GEORGIA: moist shaded sandy place in Ogeechee River swamp, Burke Co., *Harper*, no. 768 (G, NY, US); bank of Ocmulgee River, Hawkinsville, Pulaski Co., *Harper*, no. 1385 (G, NY, US); Marshallville, Macon Co., *Earle*, no. 2973 (NY, TYPE); rich woods in southeastern part of Sumter Co., *Harper*, no. 490 (NY, US); moist sandy places, Leslie, Sumter Co., *Harper*, no. 408 (NY, type of *R. prolifera* Small; US, isotype); swamp of Chickasawhatchee Creek at Johnson Bridge N., Elmodel, Baker Co., *Eyles*, no. 7059 (Hermann Herb.). FLORIDA: wet sandy soil near Perry, Taylor Co., *Palmer*, no. 27285 (G); low ground, Marianna, Jackson Co., May 26, 1940, *Sargent* (Sargent Herb.); river swamps, Apalachicola, Franklin Co., *Chapman in Biltmore Herb.*, no. 4471 (G, NY, US); swamps, Walton Co., 1885, *Curtiss* (NY); swampy woods along Yellow River near Milligan, Santa Rosa Co., *Curtiss*, no. 6854 (G; US, in part). ALABAMA: palmetto swamp, vicinity of Auburn, Lee Co., *Pollard & Maxon*, no. 42 (G, NY, US). MISSISSIPPI: Ocean Springs, Jackson Co., *Tracy*, no. 114 (NY). LOUISIANA: vicinity of Covington, St. Tammany Parish, *Arsène*, no. 12307 (US); mixed pine and palmetto, half way between Walker and St. Sillman, Livingston Parish, *Trotter & Chilton*, no. 129 (La); ditches, Baton Rouge, Baton Rouge Parish, May 19, 1874, *Joor* (US). TEXAS: in bed of brook in high mixed forest, 5 miles south of Nacogdoches on Lufkin Road, Nacogdoches Co., *Lundell & Lundell*, no. 9643 (CU); 1883, *Neally*, no. 28 (NY, US); East Texas, *Wright* (G).

R. mixta has a culm which, in common with so many members of this series, varies in degree of flexuosity from upright, with a curving distal internode, to weak, attenuated and nearly procumbent. Specimens of the latter extreme have open fascicles with long filiform divergent branchlets; those with the greatest stiffness, however, have flexuous but not open fascicles, the branchlets of which are often shorter, usually ascending, causing a closer approximation of the spikelets. As in the closely related *R. miliacea*, the number of achenes in a spikelet is very variable. I consider that Small, in designating those specimens which have spikelets bearing from 8–10 achenes as *R. prolifera*, set up an artificial boundary which alone delimited that species from *R. mixta* of Britton.

65. R. DECURRENS Chapman. Caespitose: leaves flat, 3 mm. wide, smooth, soft, with 3-angled setaceous tips: culms obtusely trigonous, smooth, slender, becoming flexuous, leafy, approximately 0.8–1.1 m. high: cymes 4–5, decompound, loose, somewhat spreading, 2–5 cm. wide, the filiform branchlets lax or drooping, bearing a few scattered or somewhat congested spikelets; lateral cymes distant, on exserted peduncles: spikelets rotundly ovoid, 3 mm. long, 3–4-flowered, 2–3-fruited, scattered or somewhat congested on capillary pedicels: scales mucronulate or muticous, chestnut-brown, caducous: bristles 6, extremely tenuous, fragile, upwardly hispidulous, equalling the achene in height: achene obovoid, slightly biconvex, bright chestnut, 0.9 mm. wide, 1.3 mm. long; the surface pitted, tending to become transversely rugulose: tubercle deltoid, compressed, somewhat decurrent, not setose. PLATE 832, FIGS. 1A and 1B; MAP 78.—Fl. So. U. S. 525 (1860); Small, Fl. 198 (1903) and Man. 185 (1933). *Phaeocephalum decurrens* House, Am. Midland Nat. vi. 201 (1920).—Swamps and marshy stream-banks, Columbus Co., North Carolina (one collection) and Florida. NORTH CAROLINA: edge of swamp, 1 mile east of Old Dock, Columbus Co., *Blomquist & Correll*, no. 9444 (D). FLORIDA: in swamp, Callahan, Nassau Co., *O'Neill*, no. 6017 (CU); south branch, St. Mary's River, summer, 1885, *Curtiss* (NY); marshy banks of streams, Dead Lakes, Calhoun Co., *Mohr*. no. 68 (US); marshy banks of lakes and rivers, Wewahitchka, Calhoun Co., *Chapman in Biltmore Herb.* no. 5964 (G, in part; NY); St. Joseph, Pasco Co., *Chapman* (NY); damp thickets, bank of Chittahachee River, Monroe Co., June 25, 1880, *Mohr* (US, in part); swamps, western Florida, July 20, 1880, *Mohr* (NY).

R. decurrens is most closely related to *R. mixta* Britt. This is at once apparent in the habit which is indistinguishable from that of *R. mixta*, for the plant has the same lax and drooping aspect with the typical flat soft leaves, and the loose cymes with their spreading or drooping filiform branchlets. The distinction between the two species depends upon achenial characters. The six bristles surrounding the customarily pale chestnut achene of *R. mixta* exceed the deltoid-attenuate tubercle which is 0.4 (rarely)–0.9 mm. high and marginally setose. The achene of *R. decurrens*, however, while similar to that of *R. mixta* in pitting and general outline, is a brilliant chestnut, surrounded by six bristles in height not equalling the tubercle, which is short (not exceeding 3 mm. long), broadly deltoid, and without a trace of marginal setae.

66. R. SCHOENOIDES (Ell.) Wood. Coarsely caespitose: leaves 4.5–5 mm. wide, flat, toward the apex becoming carinate and finely serrulate along the margins, triquetrous at the apex: culms 3-angled, becoming slender and flexuous, 0.8–1.5 m. high: cymes 2–5, decompound, densely fasciculate, irregularly corymbiform, 2–6 cm. wide; the branchlets approximate, arching, terminating in glomerulate clusters of spikelets; lateral panicles subexserted on slender peduncles: spikelets rotundly ovoid, turgid, 3–6-flowered, 2–4-fruited, 2.5–3.2 mm. long: scales mucronulate, loose, caducous, dark brown: bristles 6, exceeding the tubercle, upwardly hispidulous, characteristically divergent: achene pyriform, extremely flattened, heavily striate between the few well-spaced transverse ridges, often pale to castaneous, 0.9–1.1 mm. wide, 1.2–1.3 mm. long: tubercle deltoid, sometimes apiculate, compressed, 0.3–0.4 mm. high. PLATE 834, FIGS. 2A and 2B; MAP 79.—Class-Book of Bot. 744 (1861); Britton, Trans. N. Y. Acad. Sci. xi. 92 (1892); Small, Fl. 198 (1903) and Man. 185 (1933). *Scirpus schoenoides* Elliott, Sk. Bot. S. Car. and Ga. i. 89 (1816). *R. Elliottii* Dietrich, Sp. Pl. ed. 6: ii. 69 (1833), non Gray; Chapman, Fl. So. U. S. 525 (1860). *R. multiflora* Gray, Ann. Lyc. N. Y. iii. 200, pl. 6, fig. 7 (1835). *Phaeocephalum schoenoides* House, Am. Midland Nat. vi. 202 (1920).—Roadside ditches and low ground in pine barrens and prairies of the Coastal Plain from North Carolina south to Georgia and west to eastern Texas. NORTH CAROLINA: sandy grassy pineland 10 miles east of Washington, Beaufort Co., *Oosting*, no. 15 (D); roadside-ditch through savanna, between Newport and New Bern, Carteret Co., *Blomquist*, no. 11247 (D); low pineland at Dunn, Harnett Co., *Godfrey*, no. 6143 (D, G); in ditch, Robeson Co., July 4, 1940, *Schallert* (G); in low wet sandy soil of ditch along road between Garland and White Lake, Bladen Co., *Correll*, no. 2562 (CU, D, G); pineland at Hallsboro, Columbus Co., *Godfrey*, no. 6267 (G). SOUTH CAROLINA: peaty exsiccated area in savanna at the side of road, 12 miles north of Georgetown, Georgetown Co., *Godfrey & Tryon*, no. 10 (CU, D, G, NY, P); peaty drainage-ditch, 2 miles west of Salters, Williamsburg Co., *Godfrey & Tryon*, no. 518 (G). GEORGIA: *Dr. Baldwin* (G, TYPE-PHOTO); sand-clay ditch, by pine woods, 5 miles northwest of Ways, Bryan Co., *Wiegand & Manning*, no. 626 (G); in swamp of Big Lott's Creek, Bullock Co., *Harper*, no. 974 (G, US); low ground, Folkston, Charlton Co., *Biltmore Herb.*, no. 10734a (US); wet clay holes, 5 miles west of Tifton, Tift Co., *Svenson*, no. 7085 (G); pine barrens near Americus, Sumter Co., July 20, 1897, *Harper* (G); Georgia?, *Elliott* (NY, fragment from Elliott Herb.). ALABAMA: boggy sandy ditch, 16 miles south of Dothan, Houston Co., *Wiegand & Manning*, no. 627 (G); Leroy, Washington Co., *Bequaert*, no. 11521 (G); *Drummond*, no. 251

(G). Mississippi: Ocean Springs, Jackson Co., *Pollard*, no. 1124 (G, NY, US); Pass Christian, Harrrison Co., Dec. 18, 1919, *Bartram* (P). Louisiana: stream-bottom south of Franklinton, Washington Parish, *Brown*, no. 6446 (La); vicinity of Covington, St. Tammany Parish, *Arsène*, no. 11066 (G); same locality, *Arsène*, no. 12220 (Mo, US); plentiful in pools along road in pine flats 2 miles west of Hammond, Tangipahoa Parish, *Hester*, no. 808 (La); New Orleans, ?*Drummond in Herb. Hook.*, no. 367 (NY); common in prairie west of Crowley, Acadia Parish, *Brown*, no. 5810 (La); common in low prairies, vicinity of Lake Charles, Calcasieu Parish, *Mackenzie*, no. 44 (Mo, NC). Texas: grows in a pond 3 miles below Town Bluff, Tyler Co., *Wright* (G); 2.6 miles east of Camp Jackson, Hardin Co., *Cory*, no. 19714 (CU); near Liberty, Liberty Co., *Bequaert*, no. 11500 (G).

67. R. microcarpa Baldw. ex Gray. Caespitose or solitary: leaves 1–3 mm. wide, rarely narrower, flat; upper margins serrated; tips 3-angled: culms obtusely triangular, leafy, ascending, becoming tenuous and flexuous above, 5–8 dm. high: cymes 1–4, decompound, fasciculate, often densely so, irregularly corymbiform, 1–6 cm. wide; lateral fascicles short-pedunculate: bracts leafy: spikelets ovoid, sometimes rotundly so, 3–4-flowered, 2–3-fruited, congested, sessile, 2.5–3 mm. long: scales aristulate to acute, dark brown, more or less loose: bristles 6, varying in length from ½ the achene to equalling the tubercle, stiffly erect: achene obovoid, slightly biconvex, glistening bright brown, deeply alveolate, with the pits subisodiametric to broadly oblong, only slightly ridged, 0.8–1.2 mm. wide, 1–1.2 mm. long: tubercle short, deltoid, compressed, 0.2–0.5 mm. long. Plate 832, figs. 2A and 2B; Map 82.—Ann. Lyc. N. Y. iii. 202, pl. 6, fig. 9 (1835); Chapman, Fl. So. U. S. 525 (1860); Britton, Trans. N. Y. Acad. Sci. xi. 92 (1892); Clarke in Urban, Symb. Ant. ii. 130 (1900); Britton, Mem. Soc. Cubana Hist. Nat. ii. 199 (1916); Small, Fl. 198 (1903) and Man. 185 (1933); Britton & Millspaugh, Bahama Fl. 55 (1920); Kükenthal, Fedde Rep. Spec. Nov. xxiii. 210 (1926), in part. *R. patula* Gray, Ann. Lyc. N. Y. iii. 201, pl. 6, fig. 8 (1835), in small part. *R. Torreyana* Gray, var. *microrhyncha* Grisebach, Cat. Pl. Cub. 243 (1866). *R. gracilis* sensu C. Wright in Sauvalle, Anal. Acad. Ci. Habana, viii. 84 (1871) and Fl. Cub. 179 (1873), in part; non (Swartz) Vahl. *R. involuta* C. Wright in herb. ex Clarke in Urban, Symb. Ant. ii. 130 (1900). *R. perplexa* sensu Britton & Millspaugh, Bahama Fl. 55 (1920), not as to type, *R. perplexa* Britton ex Small. *R. Edisoniana* Small, Man. 184, 1503 (1933). *Phaeocephalum microcarpum* House, Am. Midland Nat. vi. 202 (1920). *Phaeocephalum patulum* (misspelled *palulum*) House, Am. Midland Nat. vi. 202 (1920), in small part.—Swamps and pond-margins of North Carolina (one collection), southern Georgia

and Florida westward along the coast to Louisiana; also on the Bahamas, and in the western provinces of Cuba and Puerto Rico. NORTH CAROLINA: Wilmington, *Curtis* (NY, cited by Gray in type-description). GEORGIA: in shallow pools along Aucilla Creek near Boston, Thomas Co., *Harper*, no. 1636 (G, NY, US). FLORIDA: swampy pine barrens near Jacksonville, Duval Co., *Curtiss*, no. 5415 (G, NC, US); vicinity of Eustis, Lake Co., *Nash*, no. 437 (G, NY, P, US); moist pine barrens, Merritt's Island, Indian River, Brevard Co., *Curtiss*, no. 3149 (CU, G, NY, P, US); "wet weather pond" near Oakland, Orange Co., *Curtiss*, no. 6625 (G, NY, US); hammock, north of Eagle Bay near Kissimmee River, Osceola Co., *Small*, no. 9911 (CU); hammock, 12 miles east of Okeechobee City, Saint Lucie Co., *Small et al.*, no. 9292 (NY); everglades along the Palm Beach Canal, Palm Beach Co., *Small*, no. 8270 (G, NY); everglades along Tamiami Trail west of Miami, Dade Co., *Small*, no. 8835 (NY, type of *R. Edisoniana*); swamp, Big Pine Key, Monroe Co., *Killip*, no. 32075 (CU, G, NY); in everglades south of Tamiami Trail, Collier Co., *Moldenke*, no. 879 (D, NY); in pineland, vicinity of Fort Myers, Lee Co., *Standley*, no. 227 (G, NY); Indian Mound near Citrus Center, DeSoto Co., *Small*, no. 9911 (NY); in a pine barren pond, north of Palma Sola Bay, Manatee Co., *Simpson*, no. 122 (G); swamp, Polk Co., *Fredholm*, no. 6229 (US); Tampa, Hillsborough Co., May, 1876, *Garber* (US); in wet soil near Lake Butler, Pinellas Co., *O'Neill*, no. 2615 (CU); in a low pineland, Pasco, Pasco Co., *O'Neill*, no. 2616 (CU); margins of ponds in the pine barrens, Apalachicola, Franklin Co., *Chapman in Biltmore Herb.*, no. 211a (G, US); open moist soil on St. Vincent's Island, Franklin Co., *Correll*, no. 5604 (D). MISSISSIPPI: Horn Island, Jackson Co., *Tracy*, no. 2329 (NY); same locality, *Tracy*, no. 7682 (G); Ship Island, Harrison Co., June, 1886, *Underwood Herb.* (NY). LOUISIANA: in pine barrens, Mandeville, St. Tammany Parish, May, 1893, *Langlois* (Mo); west end of Grand Morais near New Iberia, Iberia Parish, *Brown*, no. 6383 (La). BAHAMAS: edge of fresh-water marsh, Southwest Bay, New Providence, *Britton & Brace*, no. 510 (NY); grows in tufts 5 miles west of Fresh Creek settlement, in a pothole a few rods from shore of a salt creek, Andros, *Wight*, no. 241 (G); pineland swamps, Eight Mile Bay, Abaco, *Brace*, no. 1863 (NY); water holes, West End, Great Bahama, *Brace*, no. 3533 (NY, US); marsh, Glass Window to Harbor Island, Eleuthera, *Britton & Millspaugh*, no. 5395 (NY); water hole, Orange Creek and vicinity, Cat Island, *Britton & Millspaugh*, no. 5781 (NY); Hog Island, *Wilson*, no. 8429 (NY); water hole, Stopper Hill, Crooked Island, *Brace*, no. 4832 (NY). CUBA: edge of coastal swamps, La Coloma, Pinar del Rio, *Ekman*, no. 17835 (NY); pineland ditch, Pinar del Rio City, Pinar del

Rio, *Britton, Britton & Gager*, no. 7250 (NY); in coastal swamps, Playa de Guanimar, Habana, *Ekman*, no. 18314 (G, NY); muddy soil, west coastal savanna, Batabano, Havana, *Britton, Cowell & De La Torre*, no. 13349 (NY, US); in shrubbery, Cienaga de Zapata, Santa Clara, *Ekman*, no. 18372 (US); *Wright*, no. 230 (NY, labeled by Gray "*R. Torreyana* Gray var." and annotated by Britton as "*R. Torreyana* var. *microrhyncha* A. Gray cotype"); *Wright*, no. 3785 (G, NY, US). Puerto Rico: marsh, Laguna del Tortuguero, *Britton & Britton*, no. 8128 (NY, US).

The more robust specimens of *R. microcarpa* cannot be superficially distinguished from specimens of *R. schoenoides*. The differences between the two species are in their achenes. That of *R. microcarpa* is surrounded by stiffly erect bristles which are shorter than the achene or equal to the tubercle in height. The achene itself is commonly biconvex, castaneous to dark brown, strongly and irregularly alveolate. The achenial bristles of *R. schoenoides* are usually divergent, exceeding the tubercle in height. Unlike the common condition in *R. microcarpa*, the achene is strongly flattened, and pale to castaneous. The alveoli are longitudinally compressed and appear as nearly regular rows of striae between a few prominent transverse ridges.

On the continent, *R. microcarpa* occurs most commonly in Florida with a few collections from North Carolina, southern Georgia, and the coastal areas of Mississippi and Louisiana. *R. schoenoides*, on the other hand, occurs on the Coastal Plain from North Carolina to eastern Texas exclusive of the Florida Peninsula.

68. R. Torreyana Gray. Caespitose: leaves slenderly linear, 2–3 mm. wide, flat or involute on drying, forming a stiff basal tuft; tips triquetrous, with finely serrated margins: culms subterete, slender, becoming flexuous, 0.5–1 m. high: cymes 2–3, decompound, fasciculate, corymbiform, 1–3.5 cm. wide; the filiform branchlets somewhat spreading: spikelets ovoid, 3–6-flowered, 1–5-fruited, pedicellate, mainly ascending, 4 mm. long: scales loosely imbricate, papery, castaneous, aristate: bristles 6, not exceeding ⅔ the achene in height, upwardly serrulate: achene obovate, to oblong-obovate in outline, extremely flattened, with the compressed alveoli appearing as fine glistening striae between the irregular transverse ridges, chestnut-brown, 1–1.2 mm. wide, 1.3–1.7 mm. long: tubercle deltoid, apiculate, compressed, decurrent, scurfy, 0.3 mm. in height. Plate 834, figs. 3A and 3B; Map 80.—Ann. Lyc. N. Y. iii. 197, pl. 6, fig. 2 (1835); Gray, Man. 532 (1848); Chapman, Fl. So. U. S. 524

(1860); Britton & Brown, Ill. Fl. i. 280, fig. 659 (1896); Britton, Man. 186 (1901); Small, Fl. 197 (1903) and Man. 184 (1933); Robinson & Fernald in Gray, Man. ed. 7: 200, fig. 317 (1908); Fernald, RHODORA, xxxix. 327 (1937). *R. micrantha* sensu Gray, Gram. et Cyp. i. no. 96 (1834), in part[1] and excl. syn. *Phaeocephalum Torreyanum* House, Am. Midland Nat. vi. 202 (1920).—Sandy pond-margins and sandy and peaty depressions in pinelands and savannas of the Coastal Plain from Cape Cod, Massachusetts, to Georgia. MASSACHUSETTS: damp sandy and peaty border of Israel Pond, Barnstable, Barnstable Co., *Fernald*, no. 8958 (G, NE, NY, P); Sconset, Nantucket Island, Nantucket Co., *Bicknell*, no. 1051 (NE, NY). RHODE ISLAND: sandy and gravelly shore of small double pond east of Long Pond, South Kingstown, Washington Co., *Collins & Fernald*, no. 11317 (G, NE). NEW YORK: damp meadow, Amityville, Suffolk Co., *Ferguson*, no. 7873 (G, NY). NEW JERSEY: White Horse, Mercer Co., *Stone*, no. 6756 (P); Quaker Bridge, Burlington Co., Aug. 1833, *Gray* (NY, TYPE); wet sandy clearing in barrens along tracks of C. R. R. of New Jersey, 1½ miles northeast of Atsion, Burlington Co., *Hermann*, no. 3556 (G); boggy swale near headwaters of Cooper Creek, Lindenwold, Camden Co., *Long*, no. 26371 (P); Egg Harbor, Atlantic Co., July 20, 1897, *Lippincott* (G); sandy clayey border of pond-hole, 1½ miles n. n. e. of Olivet, Salem Co., *Long*, no. 47085 (P); moist pine barrens, Swain, Cape May Co., *Mackenzie*, no. 7193 (NY). DELAWARE: Felton, Kent Co., *Canby* (G, P); wet pine barrens near Laurel, Sussex Co., Aug. 5, 1874, *Commons* (P). MARYLAND: wet thickets along Snow Hill Road, 7½ miles southeast of Salisbury, Wicomico Co., *Tatnall*, no. 4371 (G); meadows, Ocean City, Worcester Co., July, 1893, *Canby* (US). VIRGINIA: wet pineland south of Petersburg, Prince George Co., *Fernald & Long*, no. 8609 (G, P); argillaceous and sphagnous bog (Reams Bog) south of Burgess, Dinwiddie Co., *Fernald & Long*, no. 8998 (CU, G, P); sandy and peaty depression (exsiccated shallow pond) about 4 miles northwest of Homeville, Sussex Co., *Fernald & Long*, no. 6076 (G, P); damp clearing in woods along Wakefield Road northeast of Sebrell, Southampton Co., *Fernald & Long*, no. 10547 (G, NY, P); sphagnous bog about 1 mile northwest of Dahlia, Greensville Co., *Fernald & Long*, no. 8609 (G, P). NORTH CAROLINA: dry savanna, 15 miles southeast of Greenville, Pitt Co., *Blomquist*, no. 11229 (D); dry pine woodland at Nashville, Nash Co., *Godfrey*, no. 5155 (D, G); mossy floor of pine woodland, Raleigh, Wake Co., *Godfrey*, no. 4924 (G, NC);

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[1] No. 96 was apparently made up from a mixed collection. In the volume belonging to the library of the New York Botanic Garden, no 96 is *R. Torreyana*, as stated by Gray in an appended correction; but in the volume at the Gray Herbarium, no. 96 is *R. gracilenta* Gray.

wet open sand pits, 5 miles west of Swanquarter, Hyde Co., *Wiegand & Manning*, no. 629 (G); savanna at Chocowinity, Beaufort Co., *Godfrey*, no. 5400 (G); pineland at Roseboro, Sampson Co., *Godfrey*, no. 5712 (G); edge of savanna, low ground, Big Savannah, west of Burgaw, Pender Co., *Blomquist*, no. 10067 (CU, D); Wilmington, New Hanover Co., Aug. 19, 1930, *Blomquist* (G); dry sandy soil, Fayetteville, Cumberland Co., *Biltmore Herb.*, no. 5055b (US); damp open sand-pocket, 4 miles north of Hoffmann, Richmond Co., *Wiegand & Manning*, no. 630 (G). SOUTH CAROLINA: low pine woods, common, Society Hill, Darlington Co., *Curtis* (G); Camden, Kershaw Co., *House*, no. 2681 (US); cart-road through pineland clearing, 5 miles south of Andrews, Georgetown Co., *Godfrey & Tryon*, no. 1329 (G, NY); grass-sedge bog or savanna, 1 mile west of Chicora, Berkeley Co., *Godfrey & Tryon*, no. 851 (CU, D, G, NY, P); grass-sedge bog or savanna, 3 miles southwest of Manning, Clarendon Co., *Godfrey & Tryon*, no. 939 (G). GEORGIA: rather dry pine barrens near Pulaski, Bullock Co., *Harper*, no. 941 (G, NY, US); pine barren at Ways, Bryan Co., *Eyles*, no. 6419 (CU); moist pine barrens west of Ochmalkee, Montgomery Co., *Harper*, no. 1868 (G, NY, US).

69. R. PERPLEXA Britt. ex Small. Caespitose: leaves flat, 1–2 mm. wide, minutely serrulate along the upper margins; tip triquetrous: culms slender, flexuous, obtusely 3-angled, 0.5–1.1 m. high: cymes 1–3, decompound, fasciculate, loosely corymbiform or rarely congested, flexuous, the terminal cyme 2–5.5 cm. high: spikelets ovoid-orbicular, turgid at maturity, 3–5-flowered, 2–4-fruited, 2–2.5 mm. long, usually crowded in a few small ultimate fascicles: scales ferruginous or blackened, broadly ovate, usually blunt or occasionally mucronulate: bristles none, or represented by 1–3 rudiments not equalling ½ the achene in height, these upwardly hispidulous: achene obovate to suborbicular in outline, flattened, 0.9–1.2 mm. wide, 1–1.3 mm. long; the surface crossed by a few prominent transverse ridges which are separated by numerous slender longitudinal striae, castaneous: tubercle broadly deltoid, apiculate, compressed, pale, 0.2–0.3 mm. high. PLATE 832, FIGS. 3A and 3B; MAP 81.—Fl. 197, 1328 (1903) and Man. 184 (1933); Fernald, RHODORA, xl. 399 (1938). *R. microcarpa* Baldw., var. *achaeta* E. Hall, Pl. Tex. 25 (1873), *nomen nudum*. *Phaeocephalum perplexum* House, Am. Midland Nat. vi. 202 (1920).—Coastal Plain from southeastern Virginia south to Florida and west to eastern Texas, inland only in central Tennessee; also in western Cuba and southern Dominican Republic. VIRGINIA: exsiccated argillaceous pond-hole in woods, about 1 mile south of Mercy Seat Church, Surry Co., *Fernald & Long*, no. 8989 (G, P); wet peaty depression in pinelands, 3–4 miles northwest of Waverly, Sussex Co., *Fernald &*

Long, no. 8115 (G, P); pond-hole in pine and oak woods near Three Creek, north of Emporia, Greensville Co., *Fernald & Long*, no. 9282 (G, P); in shallow water of flat pineland, Collier's Yard, 2½ miles south of Petersburg, Dinwiddie Co., *Smith & Hodgdon* in Pl. Exsic. Gray., no. 924 (CU, G, NY, P). North Carolina: drained grassy plain, 1 mile east of Delco, Columbus Co., *Wiegand & Manning*, no. 615 (G). South Carolina: common in savannas, Sumter Co., Aug. 4, 1884, *J. D. Smith*, (G, US); exsiccated pine-barren pond, 7 miles southeast from Columbia, Richland Co., Sept. 26, 1883, *J. D. Smith* (G, US). Georgia: swamp, Augusta, Richmond Co., *Ruthbert*, no. 343 (NY); gum-swamp along U. S. Route 17, south of Ways, Bryan Co., *Eyles*, no. 6285 (CU); margin of pond, north of Ludowici, Long Co., *Eyles*, no. 6526 (CU); dry soil, Valdosta, Lowndes Co., May 27, 1940, *Sargent* (Sargent Herb.); wet clay holes, 5 miles west of Tifton, Tift Co., *Svenson*, no. 7087 (G); shallow (now dry) pine-barren pond near Cobb, Sumter Co., *Harper*, no. 1403 (G, NY, US); margin of pond in pine barrens, 7 miles north of Cordele, Dooly Co., *Eyles*, no. 2303 (CU). Florida: *Chapman*, no. 2 (NY, type); swampy places in pine barrens near Jacksonville, Duval Co., *Curtiss*, no. 5178 (G, US); pinelands, Starke, Bradford Co., May, 1923, *Wyman* (NY); prairies near Ft. Shackleford, Big Cypress, Lee Co., *Small*, no. 8352 (NY); Ponce de Leon, Holmes Co., *Curtiss*, no. 6482 (G, NY, US). Alabama: pond, Elberta, Baldwin Co., July 15, 1926, *Wolf* (StB); low wet places, Mobile, Mobile Co., *Mohr*, no. 142 (US). Mississippi: Mississippi City, Harrison Co., *Lloyd & Tracy*, no. 379 (NY). Tennessee: wet open woods bordering a bog north of Manchester, Coffee Co., *Svenson*, no. 9139 (CU, D, G, NY). Louisiana: in pine barrens near Mandeville, St. Tammany Parish, May 1, 1893, *Langlois* (CU, Mo, P, US); Lake Charles, Calcasieu Parish, *Tracy*, no. 4882 (Mo, NY, US). Texas: in a pond three miles below Town Bluff, Tyler Co., *Wright*, no. 102 (G); ponds, Hempstead, Waller Co., *Hall*, no. 710 (G, type of *R. microcarpa* Baldw. ?var. *achaeta* Hall, nomen nudum; Mo, US, isotypes). Cuba: border of lagoon, vicinity of Pinar del Rio City, Pinar del Rio, *Britton, Britton & Gager*, no. 6962 (NY); banks of lagoon, El Punto, east km. 11 of road to La Coloma, south of Pinar del Rio, *Ekman*, no. 18262 (NY. This number cited by Kükenthal as *R. microcarpa* A. Gray). Hispaniola: in the Rhexia belt, near Laguna de los Derramaderos, Sabana Guabatico, prov. Santo Domingo, Llana Costero, Santo Domingo, *Ekman*, no. 13320 (NY. Determined by Kükenthal as *R. microcarpa* A. Gray.).

The description above differs in two important details from the original description which appeared in Small's Flora of the

Southeastern United States. The original reads: "perianth bristles 6" and "achenes biconvex." In his Manual of the Southeastern Flora neither of these statements reoccur. I am inclined to believe that they were erroneously included in the original, probably due to a mixture in the material under study. The type-specimen is clearly *R. perplexa* as described above, the achene being extremely flat, not biconvex, and the bristles 1–3 and rudimentary.

Series 12. **Glaucae** (Clarke), stat nov. Growing in marshy areas, grassy slopes, and open woodland of the West Indies (represented by *R. californica* in the coast ranges of northern California); also in Central and South America and warmer parts of the Old World. Caespitose, rarely depressed: leaves 1.5–3 mm. wide: culms slender to stout, stiffly erect or becoming flexuous: cymes compound or decompound, fasciculate; the branchlets rigidly erect and spreading or flexuous: spikelets sessile, 1–3-fruited: scales loosely imbricated: bristles equalling the achene or exceeding the tubercle, antrorsely serrulate: achenes broadly or slenderly pyriform, a shining yellow-brown or light brown; the surface alveoli reduced to longitudinal striae which are intercepted by transverse corrugations or vague and blurred rugulosities: tubercle deltoid, compressed, often attenuated.—*Rhynchospora*, Series B. *Diplostyleae*, Sect. 5. *Glaucae* Clarke in Urban, Symb. Ant. ii. 106 (1900), in part.

Key to Species in Series Glaucae

Tubercle deltoid-attenuate, well exceeded by the bristles: achene with the transverse rugulosities and fine striae blurred to often nearly smooth.
  Achene 1.4 mm. wide, 2 mm. long; scales caducous: species known only from the coast ranges of northern California. 70. *R. californica.*
  Achene 1.2 mm. wide or less, 1.6 mm. long or less: scales persistent: species not known north of the West Indies.
    Habit coarsely erect: culms 0.6–1.4 m. high: fasciculate cymes loosely decompound, 2.5–4 cm. wide, with slender elongate flexuous branchlets: achene 1–1.2 mm. wide, 1.4–1.6 mm. long. . . . . .71. *R. Mariscculus.*
    Habit depressed: culms 0.3–1.2 dm. high: fasciculate cymes decompound, small and congested, 1–1.5 cm. wide with short, stiffly erect or somewhat spreading branchlets: achene 0.9 mm. wide, 1.1 mm. long. . . . . .72. *R. cacuminicola.*
Tubercle deltoid, equalled or slightly exceeded by the bristles: achene corrugate. . . . . .73. *R. rugosa.*

70. R. **californica,** sp. nov. Planta caespitosa: foliis 2–3 mm. latis planis, apice triquetris; marginibus superioribus minutissime dentatis: culmis fere 1 m. longis trigonis tenuibus apicem versus flexuosis: fasciculo terminali decomposito stricto

2 cm. lato aut minus; ultimis glomerulis in ramulis brevibus tenuibus rigidisque gestis; fasciculis lateralibus minoribus; pedunculis longis ascendentibus: spiculis late ovatis, floribus tribus sed cum flore quarto terminali abortivo, dicarpis 4 mm. longis: squamis aristulatis, valde caducis: setis 6–7, antrorse hispidulis tuberculo longioribus basi latioribus et sparse plumosis: achaenio obovato lenticulari biconvexo obscure marginato lucido pallido obscure ruguloso 1.4 mm. lato 2 mm. longo: tuberculo attenuato-deltoideo 1 mm. alto. PLATE 834, FIGS. 1A and 1B; MAP 60.—Marsh in the foothills of the coastal ranges of northern California. CALIFORNIA: Pitkin Marsh, 5 miles north of Sebastopol, Sonoma Co., July 26, 1936, *J. T. Howell*, no. 12679 (G, TYPE; CA, ISOTYPE).

This fine new species was collected and sent to me for study by Mr. John Thomas Howell of the California Academy of Science. Its large pale achene rendered conspicuous by the caducous scales is unmistakable and unique among the species of the United States. The light yellowish surface with the faint blurred rugulosities recalls that of *R. Marisculus* Lindl. et Nees in Mart.; whereas the habit is slighter but not unlike that of *R. rugosa* (Vahl) Gale.

In all probability, if the status of specimens which have been collected in Central and South America as well as in the warmer areas of the Old World and which have been identified as *R. glauca* (*R. rugosa* (Vahl) Gale), be given a much needed revision the relationship of *R. californica* to the Series *Glaucae* could be more clearly defined.

71. R. MARISCULUS Lindl. et Nees. Coarsely caespitose: leaves 2–3 cm. wide, stiffly ascending with attenuated, triangular serrated tips: culms stoutly ascending, 3-angled, leafy, 0.6–1.4 m. high: cymes fasciculate, 1–3, loosely decompound, 2.5–4 cm. wide, flexuous; axillary cymes on ascending exserted peduncles: spikelets lanceolate in outline, loosely organized, 1–4-flowered, 1–2-fruited, 5–6 mm. long: scales lanceolate-aristulate, loosely overlapping, dark brown: bristles 6, upwardly serrulate, finely attenuated, irregularly ascending to spreading and contorted, well exceeding the tubercle in length: achene obovoid, sometimes slenderly so, biconvex with a depressed margin, light yellow-brown, 1–1.2 mm. wide, 1.4–1.6 mm. long; the minute longitudinal striae and transverse rugulosities blurred: tubercle triangular-attenuate, compressed, 1.2–1.8 mm. long. PLATE 835, FIGS. 3A and 3B; MAP 61.—Nees, Linnaea, ix. 297 (1835), *nomen nudum;* Kunth, Enum. ii. 303 (1837), cited as "Sp. mihi

nonnisi nomini notae."; Nees in Mart., Fl. Bras. ii. pars 1: 142 (1842), first valid publication; Boeckeler, Linnaea, xxxvii. 590 (1873); C. B. Clarke in Urban, Symb. Ant. ii. 132 (1900), excl. syn. *R. odorata* C. Wright and *R. jubata* Liebm.; Britton & Wilson, Sci. Surv. Porto Rico and Virgin Isl. v. 105 (1923); Kükenthal, Fedde Rep. Spec. Nov. xxxii. 77 (1933). *R. tenuiseta* Wright in Sauvalle, Anal. Acad. Ci. Habana, viii. 83 (1871) and Fl. Cub. 179 (1873). *R. borinquensis* Britton, Bull. Torr. Bot. Cl. xlii. 387 (1915); Britton, Mem. Soc. Cubana Hist. Nat. ii. 200 (1916); Britton & Wilson, Sci. Surv. Porto Rico and Virgin Isl. v. 104 (1923). *Dichromena Marisculus* Macbride, Field Mus. Pub. Bot. xi. 5 (1931).—In damp openings of woodland, Greater Antilles. Jamaica: Guy's Hill, St. Mary's, 1839, *McNab* (G). Cuba: in tembladeras, in a swamp just to the east of Laguna de la Maguina, Pinar del Rio City, Pinar del Rio, *Ekman*, no. 17883 (NY); *Wright*, no. 3780 (G, type of *R. tenuiseta* Wright in Sauvalle; NY, US, isotypes); wet soil among rocks in stream, Arroya del Medio above the falls, Oriente, alt. 450–550 m., *Shafer*, no. 3231 (NY); damp woods near sphagnum, Sierra Nipe near Woodfred, Oriente, alt. 450–550 m., *Shafer*, no. 3453 (NY); in thickets on path from Woodfred to Piedra Gorda, Sierra de Nipe, Oriente, *Ekman*, no. 15247 (US); La Prenda, Oriente, *Hioram & Manuel*, no. 4671 (NY). Hispaniola: silt flats, moist ground, Sabana Nueva, Lomas de la Mediania, San Juan, prov. de Agua, Cordillera Central, Santo Domingo, *Ekman*, no. 13601 (G, NY, US); on tembladera, in a laguna, Cuenca, Santo Domingo, Llano Costero, Santo Domingo, *Ekman*, no. 10982 (US). Puerto Rico: open wet places in forest, Sierra de Naguabo, Rio Icaco and adjacent hills, alt. 465–720 m., *Shafer*, no. 3515 (NY, type of *R. borinquensis* Britt.).

R. jubata Liebm. was confused by C. Wright with his *R. tenuiseta*, and so continued on in the synonymy of *R. Marisculus* by C. B. Clarke. I have examined a specimen of Liebman's from S. Antonio, Huatusco, which is the type-locality as given in Mexicos Halvgraes,[1] and believe it to represent a distinct species. It differs from *R. Marisculus* both in its pronounced lax, more tenuous habit, and in its achene, which is distinctly cencellate and rugulose, surrounded by six stiffly erect bristles that equal but do not exceed the tubercle in length. Proof of this opinion rests, however, on the examination of more Mexican material.

An examination of the New York collections of *R. Marisculus* leads me to believe that *R. borinquensis* Britt. owes its existence

[1] Ibid. 67 (1850).

to Britton's mistaken application of the name *R. Mariscus* Lindl. et Nees to specimens of *R. odorata* Wright.

72. R. **cacuminicola,** sp. nov. Planta humilis caespitosa: foliis 1–2 mm. latis subcoriaceis leviter carinatis; apicem versus serratis triquetris, basi confertis, culmo brevioribus: culmis obtuse triangularibus 0.3–1.2 dm. altis: cyma terminali decomposita; ramulis brevibus rigide erectis vel ascendentibus fasciculis terminalibus parvis confertis; fasciculo laterali approximato; pedunculo ascendenti: spiculis lanceolatis 4–4.5 mm. longis 2–3-floris 1–2-carpis sessilibus congestis: squamis acutis vel fere aristulatis ferrugineis margine erosis: setis 6–7, quam tuberculum multo longioribus antrorse hispidulis: achaenio pyriformi 0.9 mm. lato 1.1 mm. longo lenticulari biconvexo marginato luteo-castaneo, obsolete ruguloso: tuberculo compresso-subulato, attenuato, 1–1.2 mm. longo. PLATE 835, FIGS. 2A and 2B; MAP 62.—Marshy areas in Cordillera Central of the Dominican Republic. DOMINICAN REPUBLIC: in pratis paludosis in valle nuevo, prope Constanza, alt. 2200 m., June, 1910, *Türckheim*, no. 3417 (NY, TYPE).

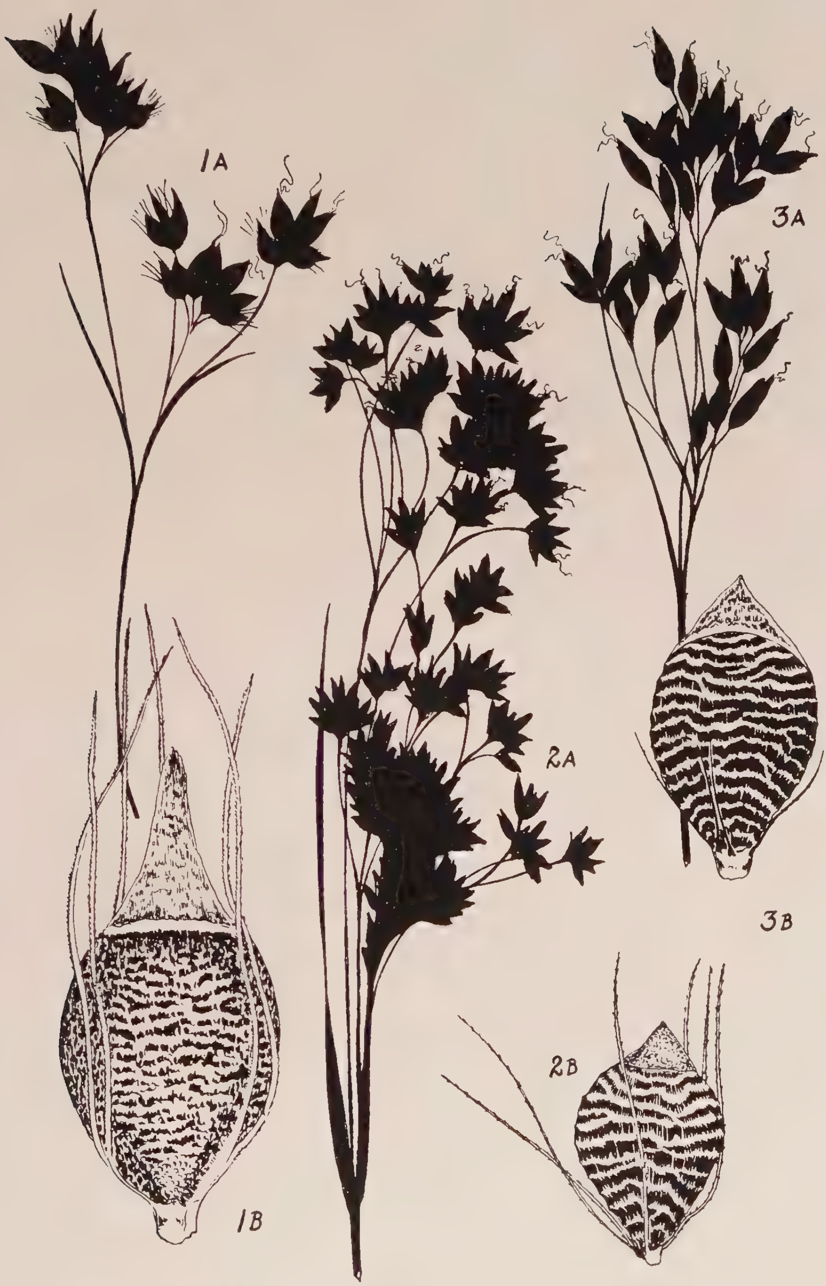
Von Türckheim's specimen is accompanied by an annotation which implies that this species is only an alpine variety of *R. glauca* Vahl (*R. rugosa* (Vahl) Gale). That it is not a depressed form of *R. rugosa,* however, is attested by the achene which is smaller than that of the latter (0.9 mm. wide, 1–1.1 mm. long as opposed to 1.2–1.3 mm. wide, 1.5–1.7 mm. long), and only obscurely rugulose, with definite but short inconspicuous basal stipe. Also the tubercle of *R. cacuminicola,* unlike the short triangular tubercle of *R. rugosa,* is prolonged, with a subulate tip, and well exceeded by the bristles.

Despite the depressed habit, the reduced stiffened inflorescence and its original reference by von Türckheim to *R. rugosa, R. cacuminicola* seems more closely allied to *R. Mariscus;* for in the surface sculpturing of the achene, the comparative length of the bristles and the shape of the tubercle, its achene is to that of the latter species a faithful although much smaller copy.

I have selected for this plant the epithet, *cacuminicola,* in order to signify its mountainous habitat, originally emphasized by von Türckheim.

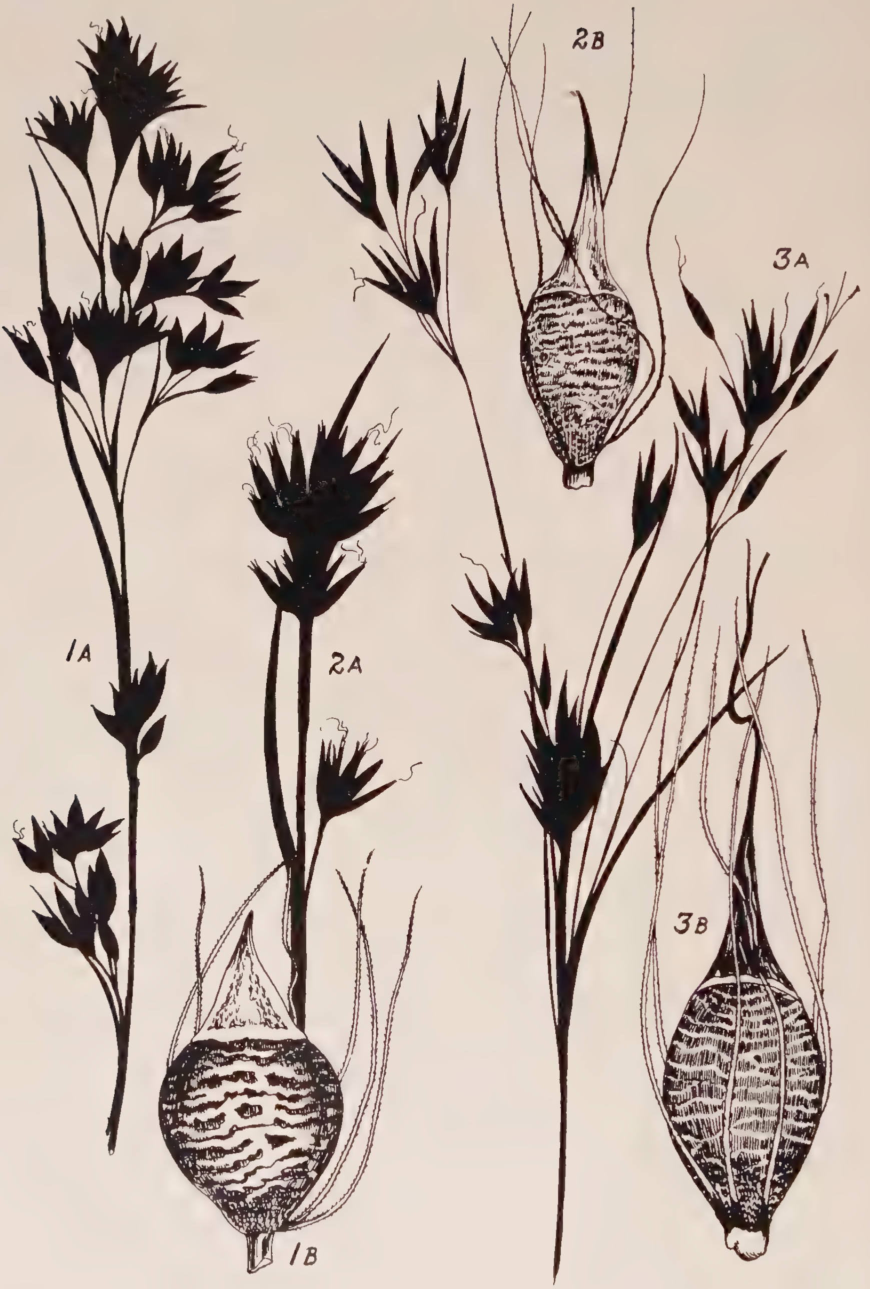
73. R. **rugosa** (Vahl), comb. nov. Coarsely caespitose: leaves 1.5–3 mm. wide, coarse, ascending to reflexed, flat, carinate, with trigonous serrated tips: culms triquetrous, stout, erect, somewhat flexuous at the summit, leafy, 0.5–1.3 m. high:

fasciculate cymes 1–3, strict, with stiffly erect or somewhat spreading branchlets, 1–2 cm. high: spikelets acutely ovoid, 4.5–5 mm. long, sessile or subsessile; scales ovate-aristate, rather loosely imbricate, ferruginous: bristles 6, upwardly serrulate, ascending or often divergent, equal to or slightly exceeding the tubercle: achene broadly pyriform, 1.2–1.3 mm. wide, 1.5–1.7 mm. long, lenticular, biconvex, with depressed margins, glistening yellow-brown; the longitudinal surface-striae obscured or nearly obliterated by the transverse broad, flattened, often pale corrugations; the thick persistent stipe 0.3 mm. long: tubercle triangular-subulate, compressed, smooth or somewhat setulose at the base, 0.6–0.8 mm. long. PLATE 835, FIGS. 1A and 1B; MAP 63.—*Schoenus rugosus* Vahl, Eclog. Am. ii. 5 (1798). *R. glauca* Vahl, Enum. ii. 233 (1806); Boeckeler, Linnaea, xxxvii. 585 (1873); Britton, Trans. N. Y. Acad. Sci. xi. 91 (1892), excl. syn. *R. pungens* Liebm.; Clarke in Urban, Symb. Ant. ii. 128 (1900), excl. syn.; Britton, Mem. Soc. Cubana Hist. Nat. ii. 199 (1916); Britton & Wilson, Sci. Surv. Porto Rico and Virgin Isl. v. 104 (1923); Kükenthal, Fedde Rep. Spec. Nov. xxiii. 210 (1926). *R. glauca* var. *altior* Kükenthal, Fedde Rep. Spec. Nov. xxxii. 77 (1933). *R. gracilis* sensu Grisebach, Fl. Brit. W. I. 574 (1864), in part, and Cat. Pl. Cub. 243 (1866), in part; C. Wright in Sauvalle, Anal. Acad. Ci. Habana, viii. 84 (1871) and Fl. Cub. 179 (1873); non (Swartz) Vahl. *Dichromena glauca* Macbride, Field Mus. Pub. Bot. iv. 166 (1929).—Mostly on damp open grassy slopes of the Greater Antilles, and of the Island of Dominica; also in South and Central America and Lower Mexico. CUBA: banks of small streams, Loma Ratones, Rio San Sebastian, La Cumbre, north of San Juan y Martinez, Pinar del Rio, *Ekman*, no. 18062 (NY, US). JAMAICA: along the trail, Mt. Airy, *Maxon*, no. 852 (US); in the morass, Pedro Morass, Upper Clarendon, alt. 3000 ft., *Harris*, no. 11169 (G, NY, US); on wet hillside, Peckham, Upper Clarendon, alt. 2000 ft., *Harris*, no. 12810 (G, NY, US); amongst grasses in wet hillside pastures, Troy, alt. 2000 ft., *Harris*, no. 12590 (G, NY, US). HISPANIOLA: eruptive slope, Haut-Piton, Port-de-Paix, Massif du Nord, Haiti, alt. 800 m., *Ekman*, no. 4638 (G, NY, US); Petit Borgne to Mt. Casse, Haiti, alt. 200 ft., *Nash*, no. 558 (NY); grassy mountain trail to Citadel, vicinity of Dondon, Depart. du Nord, Haiti, alt. 400 m., *Leonard*, no. 8643 (US); grassy summit of mountain east of village, vicinity of Marmelade, Depart. du Nord, Haiti, alt. 800 m., *Leonard*, no. 8241a (US); pineland, Lagunas de Cenobi, Moncion, Monte Cristi, Cordillera Central, Santo Domingo, c. alt. 1100 m., *Ekman*, no. 12762 (NY, US). PUERTO RICO: in thickets, Las Mesas, near Mayaguez, alt. 350 m., *Holm*, no. 64 (CU), Aguada, *Sintenis*, no. 5742 (US); in graminosis, Lares, *Sintenis*, no. 5901 (G, US); low ground back



S. G. del.

Rhynchospora californica: fig. 1A, portion of inflorescence, × 2; fig. 1B, achene, × 20.
R. schoenoides: fig. 2A, portion of inflorescence, × 2; fig. 2B, achene, × 20.
R. Torreyana: fig. 3A, portion of inflorescence, × 2; fig. 3B, achene, × 20.



S. G. del.

Rhynchospora rugosa: fig. 1A, inflorescence, × 2; fig. 1B, achene, × 20.
R. cacuminicola: fig. 2A, inflorescence, × 2; fig. 2B, achene, × 20.
R. Mariscus: fig. 3A, portion of inflorescence, × 2; fig. 3B, achene, × 20.

of Catano, *Heller,* no. 6410 (CU, NY, US); road from Rio Piedras to Trugillo alto, *Hioram,* no. 806 (NY, US); Cidra, Feb. 28, 1928, *Perkins* (NY); on rock by falls in river, Rio Icaco and adjacent hills, Sierra de Naguabo, *Shafer,* no. 3534 (NY, US). DOMINICA: common in cleared pasturelands on deep rich soils of Milton Estate, ca. alt. 530 m., *Hodge & Hodge,* no. 2608 (G). SOUTH AMERICA: America Meridionali,[1] *Rohr in Vahl Herb.* (G, TYPE-PHOTO).

The species, *Schoenus rugosus,* was published with full description by Vahl in his Eclogae Americanae, ii. 5 (1798). However, when, in the Enumeratio Plantarum of 1806, he transferred the species to *Rhynchospora,* he unfortunately chose to give it a new name, and it appeared as *R. glauca.* The old name, *Schoenus rugosus,* was then given in synonymy, accompanied by the original description and citation, "Habitat in America meridionali. von Rohr". Since the specific name, *rugosa,* is available for use under *Rhynchospora,* the new combination *R. rugosa* (Vahl) Gale takes precedence over *R. glauca* Vahl.

The range of this species has been generally given as warmer regions of both hemispheres. However, the specimens from the East Indies and adjacent continental lands which have been commonly identified as *R. glauca,* are not, I believe, conspecific with the authentic *R. glauca* Vahl (*R. rugosa* (Vahl) Gale) of the West Indies, Central and South America. Although these Asiatic plants are closely related to and have the same general aspect as *R. rugosa*—the coarse growth and strict, compound fascicles with mainly ascending, sessile spikelets in small ultimate clusters—their achenes are larger, more nearly orbicular rather than pyriform, and the surface of the achene is generally castaneous, pitted, and finely ridged, without the prominent yellowish band-like corrugations which characterize the achenes of *R. rugosa.*

The Gray Herbarium isotype of Liebman's[2] *R. pungens,* Mirador, July, bears the annotation *R. glauca* Vahl followed by Britton's initials. The specimen itself is fragmentary and the surface details of the mature achenes are obscured by what appears to be an unnatural whitish coating. However, careful examination seems to indicate that the achenes are normally cancellate to nearly smooth, with only a suggestion of transverse rugosity. In addition, the tubercle is plainly spongy and tongue-shaped rather than strongly compressed and triangular-subulate. If these observations can be confirmed through better material, *R. pungens*, although closely related to *R. glauca*, will retain its specific status.

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[1] Probably along the coast of Colombia or of French or Dutch Guiana. See Lamarck, Encycl. Meth. Bot. viii. 754 (1808).

[2] Mexicos Halvgraes, 65 (1850).

PARONYCHIA IN CENTRAL AND WESTERN TEXAS

V. L. Cory[1]

I was considerably puzzled when my three numbers (34663 from a slope at the head of the Sabinal Canyon in Bandera County, 35036 from the southern part of Sutton County, and No. 35642 from the vicinity of the Devil's Sink Hole in Edwards County) were determined by a botanist checking my determinations as every one being *Paronychia Lindheimeri* Engelm. No. 35036 was known to differ from the others in being of perennial growth and in being our common species, *P. Jamesii* T. & G. The other two species agree with *P. Lindheimeri* in being annuals, but they seemed to me to be too much different to be thrown together as representatives of one variable species. In this bewilderment my material was sent to Dr. I. M. Johnston of the Arnold Arboretum, and he referred my No. 34663 to *P. setacea* T. &.G. and No. 35642 to *P. chorizanthoides* Small. Although finding myself able to agree with these determinations my material subsequently was sent to Dr. E. L. Core of the University of West Virginia, whose publication, *The North American Species of Paronychia*, is considered as authoritative. He agreed with the determinations of Dr. Johnston. In this connection material of two other species was sent to both of these gentlemen, and both are in agreement in the probability that two new species are represented.

The only annual species of Paronychia I have seen on the summit of the Edwards Plateau is *P. chorizanthoides*, and No. 35642 is my westernmost locality of collection. In September of 1942 I met up with an annual Paronychia growing in abundance on the summit of the Davis Mountains, about 6½ airline miles west-northwest of Alpine in Brewster County, and the

[1] Range Botanist, Texas Agricultural Experiment Station.

collection made there bears the number 40432. On an airline the Brewster County locality is fully 200 miles west of the Edwards County locality, and is fully 3300 feet higher in elevation, and the soil is from igneous rocks instead of limestone. The western locality has an elevation in excess of 5600 feet. With my material of the three annual species of Paronychia before me together with the available descriptions of *P. Lindheimeri*, it is my conclusion that this annual plant from the summit of the Davis Mountains is a distinct species, that it is more nearly related to *P. chorizanthoides* than it is to *P. Lindheimeri*, and that it is proper to propose a name for it.

PARONYCHIA **monticola,** sp. nov. Annua, erecta, patens, latior quam altior, glabra; caulibus gracilibus, 10–15 cm. altis, 1–1.5 mm. crassis, basi vel ad 3 cm. supra basem ramosis, ramis plus minusve iteratim dichotomis; foliis setaceis, glabris, quam internodiis brevioribus, 1 cm. longis vel brevioribus, sessilibus; stipulis lanceolatis, argenteis, 4 mm. longis vel brevioribus; cymis solutis, supremis exceptis 2-partitis cymis partialibus pedunculatis, flore in dichotomia singulo, sessili vel breviter pedicellato; inflorescentiae ramis 2-bracteolatis, bracteis cum foliis congruentibus, superioribus diminutis, ultimis quam calyce brevioribus; calyce lineari-oblongo, 2.5 mm. longo vel paullo majore, viridi-luteo, basi striguloso; sepalis oblongis, intus cucullatis, 2 mm. longis vel ultra, apice cuspide ca. 0.25 mm. vel breviore insignitis.—No. 40432 is designated as the TYPE specimen. It is deposited at the Gray Herbarium. ISOTYPE material is deposited at the herbarium of the University of West Virginia.

Like *P. Lindheimeri* the foliage of *P. monticola* is glabrous, but otherwise its relationship is more nearly with *P. chorizanthoides*. It differs from the latter in being glabrous instead of puberulent, in being slender-stemmed and much smaller in growth, one-half or less the height and one-third or less the spread, in lacking a silvery appearance, in the arrangement of the inflorescence through the lack, in all but the uppermost cymules, of the sessile flower in between the two pedunculate clusters, in the cusp of the sepal being less than half as long, in the leaves and stipules being at least a third shorter, and especially in that the uppermost bracts do not surpass the calyx, whereas in *P. chorizanthoides* the bracts not only surpass the calyx but also surpass the pedunculate clusters.

In *The North American Species of Paronychia* by Dr. Earl L.

Core, *P. scoparia* Small is included with *P. virginica* Spreng., with two widely separated centers of distribution shown, one being in northern Virginia and the other in North Central Texas. It is my opinion that the differences recognized by Dr. J. K. Small exist, perhaps not to the extent of justifying specific separation, but justifying the recognition of *scoparia* as a variety of *virginica*. Based upon *P. scoparia* Small, Bull. Torr. Club **24**: 335. 1897, I propose the combination,

P. virginica Spreng., var. **scoparia** (Small), new comb.

Material of a perennial species of Paronychia has been sent to me by my co-worker, Mr. H. B. Parks. In my judgment this plant is amply distinct from other described North American species. Dr. E. L. Core writes that he has seen nothing like it, and Dr. Johnston does not place it with a described species.

Paronychia **Parksii.** sp. nov. Perennis, dense caespitosa; caulibus rigidis, strictis, omnino erectis, inflorescentia excepta eramosis, ad 2 mm. crassis, 3.5–5.5 dm. altis, scabris puberulisque; foliis subulatis, mucronatis, 2–2.5 cm. longis, 1 mm. vel minus latis, infimis brevioribus, supremis quam internodiis longioribus, puberulis scabrisve; stipulis lineari-lanceolatis, longe attenuatis, argenteis, ab apice plus minusve profunde partitis, 6–10 mm. longis; cymis 6–8-ies dichotomis, diffusis, fastigiatis, plurifloris; bracteis cum foliis congruentibus, supremis calycem aequantibus; calyce 4.5–5 mm. longo, basi 1.5 mm. lato, ultra medium vix 0.75 lato, scabrido; sepalis linearibus, carinatis, saepius 2-nerviis, raro 3-nerviis, cuspidatis, viridi-luteis, cuspide 1 mm. longo vel longiore, intus subcucullato, margine scarioso brevi.—No. 41046, collected by Mr. H. B. Parks at ten miles north of Boerne in Kendall County, on August 15, 1942, is designated as the type specimen. It is deposited at the Gray Herbarium. Isotype material is deposited at the herbarium of the University of West Virginia and at the Tracy Herbarium of the A. and M. College of Texas.

This species grows further west and at somewhat higher elevation than does *P. scoparia*, with which it may be compared. It differs therefrom in being half again as tall or frequently twice as tall, in the stems being strictly erect instead of spreading, and in the sepals being 4–4.5 mm. long instead of 3–3.5 mm. long. Also the mature plant is reddish in coloration instead of yellowish as is *scoparia*. The above description is from fruiting material, for I have not seen this plant growing.

I wish to express grateful acknowledgment to Dr. Leon

Croizat for valuable assistance given in the preparation of the Latin descriptions.

Sonora, Texas.

A Note on Baptisia tinctoria, var. projecta.—When Professor Fernald (Rhodora **39**: 415. 1937) described *Baptisia tinctoria*, var. *projecta*, he cited specimens from Huntingdon County, Pennsylvania, and Bath County, Virginia. Dr. Larisey (Ann. Mo. Bot. Gard. **27**: 188. 1940) cited two additional collections from the Shenandoah National Park in Virginia. Both Fernald and Larisey gave the length of racemes in var. *projecta* as 3–4.5 dm., whereas they stated that the racemes of typical *B. tinctoria* are usually 1 dm. or less in length. Specimens in the Cornell University Herbarium from Oswego County, New York, have the racemes very short, 1–7 cm. long, and the flowers 11–13 mm. long. These contrast markedly with collections from Center and Huntingdon Counties, Pennsylvania, which have the racemes 21–30 cm. long and the flowers 13–15 mm. long. These last impress me as belonging to var. *projecta*, probably also a specimen from Newton, Sussex County, New Jersey, *J. P. Young*, June 15, 1919, which has a raceme 16.5 cm. long and flowers 14 mm. long. Possibly 15 cm. might make a more satisfactory lower limit than 30 cm. for the length of raceme of var. *projecta*. Most specimens of *B. tinctoria* have racemes well below that length. Those that are intermediate are very few. In the Cornell University Herbarium there are only two intermediate collections, one from Perry County, Pennsylvania, with flowers 13–14 mm. long and racemes 8–9 cm. long and another from Fairfax County, Virginia, with flowers 14–15 mm. long and racemes 5–10 cm. long. Otherwise, var. *projecta* seems like a reasonably distinct variety, probably genetically different from the smaller-flowered typical variety which regularly has short racemes. Var. *crebra*, on the other hand, though representing a tendency, seems scarcely tangible. Plants from Oswego County, New York, are almost indistinguishable in leaflets, flowers and fruits from specimens from the Coastal Plain of North and South Carolina. For that reason, perhaps the northern and southern plants are best all classed together as typical *B. tinctoria*.—Robert T. Clausen, Dept. of Botany, Cornell University, Ithaca, N. Y.

Abrams's Illustrated Flora of the Pacific States.—Not only the army of professional and amateur botanists of the Pacific States but all of us who have long appreciated the scholarly work of Professor LeRoy Abrams will breathe the easier now that the 2nd volume of his great Illustrated Flora[1] is actually out. The form has been changed, with all the line-drawings gathered into separate pages, a saving of both space and expense and, some will think, an improvement; and there is, most happily, a larger proportion of excellent and evidently accurate new illustrations, the first volume often predominantly with copied drawings (*Potamogeton*, the *Cyperaceae*, etc.). In the new volume these misfit, stiffer and often misleading drawings (for instance in *Lycopodium*, where the illustrations of *L. inundatum*, *L. complanatum* and *L. annotinum* are scarcely of typical forms of the species) seem relatively few, the small new drawings having evidently been planned by the author or a botanical helper, not left to the doubtful botanical acumen of the draftsman. They are, consequently, bound to be really helpful; the author and publisher are to be congratulated on the success with which they have come out on relatively unglazed paper. No one with half an eye for details can now go far astray in identifying his plants.

The treatments are conservative and the nomenclature and recognition of families, genera and species along the lines approved by the best international usage, though in debatable cases, like the recognition of *Parnassiaceae* and *Grossulariaceae* as families, the more liberal choice is made, with *Grossularia* and *Ribes* kept apart as genera (these treatments by Coville). On the other hand, *Astragalus* and *Potentilla* are kept intact. Other groups are treated by specialists: *Lupinus* kept down to 84 species by Charles Piper Smith, the many so-called genera of the *North American Flora* reassembled as the single genus *Saxifraga* by Rimo Bacigalupi, and *Ranunculus* very conservatively treated by Lyman Benson, while many recent propositions in that prolific source of supposed novelties, *Eriogonum*, are reduced, leaving the modest score of 80 recognized species. The treatments of some other groups by specialists are acknowledged.

In the treatment of the term "subspecies" which, especially in the western half of the United States has been debased from its proper and dignified status and made absolutely inseparable from the time-honored varietas, the author has left the user in perplexity. He personally calls geographic varieties and, one cannot help thinking, some mere forms, "subspecies" but side-by-side with them he admits, without transfer to that rank, variations which have been put out as "vars." Thus (p. 151) *Arenaria macradenia* has two variations described: var. *Parishiorum* Robinson (1894) and subsp. *Ferrisiae* Abrams, subsp. nov. Again, under *Eriogonum deflexum* (p. 34) we get "subsp. *Watsonii*", which "differs chiefly from the typical species in the more slender and longer . . . peduncles", not a degree of difference which is strikingly more significant than that shown in "var. *brachypodum*", next following it and "with the habit of the typical species . . . but the branches, peduncles and involucres glandular instead of glabrous", while of "var. *brachypodum*" we are told that "This subspecies ranges from Inyo County . . . to western Arizona and Lower California". Just such cases give the whole thing away. Some of our western friends who have suddenly adopted "subspecies" see no difference between them and the varieties of more conventional botanists of nearly two centuries, while they ignore the proper use of the dignified and long-used term subspecies for variations of much higher rank. It was hoped that in a work by so scholarly a student as Abrams this fad of the hasty, ill-advised and misinformed would get exposed. Just because a term is relatively new and is used by some zoölogists it does not follow that it is clearer, unless it really clarifies. The user of this Illustrated Flora can only become needlessly and hopelessly perplexed. If his intellectual befuddlement is sufficient to make him wish some relief he might turn to Rhodora, xlii. 239–246 (1940) and ibid. xliv. 154–167 (1942), where the real meanings of these terms are discussed. He may not wish to be so "old-fashioned" as to follow long-established usage; he can, however, if he cares to do so, understand how confused have become some of our western friends and how far they have wandered off the beaten path.

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[1] LeRoy Abrams. Illustrated Flora of the Pacific States, Washington, Oregon. and California. In four volumes, Vol. II. Polygonaceae to Krameriaceae. 1944 Stanford University Press, Stanford University, Calif. i–viii + 635 pp. $7.50.

Naturally the eastern botanists can hardly check the detailed treatments of strictly western groups. In cases of transcontinental or semi-cosmopolitan plants and those which were first described from one of the original 13 states, it is natural that he should note the treatments in groups which he has personally investigated. On p. 53 appears *Rumex persicarioides* with an illustration as fig. 1439 and the stated range: "British Columbia to southern California and across the continent. Closely related to *R. maritimus* L. of the Old World. Recently our plants have been referred to *R. fueginus* Philippi of Chile, by Rech. f. Field Mus. Bot. Ser. **17**: 136. 1937. Type locality: Virginia." Now, as distinctly shown by St. John, Rhodora, xvii. 73–80, pl. 113, figs. 5 and 6 (1915), *R. persicarioides* is strictly of the Atlantic coast, a very local and definite plant, now known only at scattered stations from the lower St. Lawrence to Virginia. The transcontinental plant, well illustrated by Abrams, was, I think correctly, treated and illustrated (his figs. 3 and 4) by St. John as *R. maritimus* var. *fueginus* (Phil.) Dusén, Svenska Exped. till Magellansl. iii. no. 5: 194 (1900). St. John also published from Washington State *R. maritimus* var. *athrax* St. John. This did not get noted in the new Illustrated Flora.

On p. 56 the synonym of *Polygonum Fowleri* Robinson is "*Polygonum Rayi*, American authors, not Babington". So far as *P. Fowleri* was originally misidentified as *P. Raii* that is correct, but it leaves the impression that the latter species is not American. That need not disturb the botanist of the Pacific coast but those who know the abundance of true *P. Raii* about the Gulf of St. Lawrence and in Nova Scotia might well wonder. The occurrence of *P. Raii* in America was emphasized in Rhodora, xv. 71, 72 (1913), xvi. 187, 188 (1914), xxiii. 150, 158, 165, 260 (1921).

Rorippa palustris (L.) Bess. appears on p. 278, but that name in the specific category goes back only to *Radicula palustris* Moench (1794). An earlier specific name was *Sisymbrium islandicum* Oeder (1768), validated by Murr. Nov. Comm. Gott. (1773), with the resultant correct combination, *R. islandica* (Oeder ex Murr.) Borbás. For detailed discussion see notes by the present reviewer in Rhodora, xxx. 131 (1928), xxxi. 17 (1929) and by Butters & Abbe, ibid. xlii. 26 (1940).

Aruncus vulgaris Raf. (1838) is taken up (p. 413) for all species of the genus, whether Eurasian or eastern or western American; but, as noted by the present reviewer in Rhodora, xxxviii. 181 (1936): "Under *Aruncus*, Rafinesque, in 1838, published two names: 'Type *A. vulgaris* and *Americanus*'. No diagnoses were given and no previous descriptions cited; the two names of Rafinesque are absolute *nomina nuda* and have no further nomenclatural status." The earliest specific name (except *Spiraea Aruncus* L.) in the whole series is *Actaea dioica* Walt. (1788), basis of *Aruncus dioica* (Walt.) Fernald, Rhodora, xli. 423 (1939). If Abrams does not care for the characters of flower and fruit pointed out and illustrated in Rhodora, xxxvii. pl. 416, and treats the genus as a monotype, there is no evident escape from *A. dioica.*

In the case of *Oxytropis deflexa* (Pall.) DC. (p. 613, fig. 2919) Abrams keeps up that name, based upon *Astragalus deflexus* Pall., who gave a beautiful plate of his species of Transbaikalia, with calyx-tube truncate, with broad rectangular sinuses between the short and setaceous teeth. Material from the type-region, in the Gray Herbarium, exactly agrees with Pallas's plate. It is not at all the North American plant which has erroneously passed as *O. deflexa.* The latter species, with long, lanceolate calyx-teeth and narrow sinuses, is *O. retrorsa* Fernald, Rhodora, xxx. 140 (1928).

One hesitates to speak of *Lathyrus maritimus* "(L.) Bigelow". If we could conserve specific names *L. maritimus* Bigelow would go into the first list, but not as "(L.) Bigelow", for, as shown in Rhodora, xxxiv. 184 et seq. (1932), "Bigelow in 1824 published as a wholly new species, *Lathyrus maritimus*, based on a wholly new type, the plant of the Boston region . . . , and particularly emphasized that the Boston plant is not the European *Pisum maritimum* because it is 'decidedly a Lathyrus.'" The detailed and necessarily intricate discussion need not here be quoted, but the earliest available name proved to be *L. japonicus* Willd. (1803), a name at present not particularly attractive. But, under the rules, *L. maritimus* is inadmissible, one of the unfortunate cases resulting from following rules.

A review, although legitimately noting the points with which the reviewer differs, should not, naturally, overstress these matters. Only one other such item will be noted: the taking up of *Potentilla pumila* (Rydb.) Fedde (1910). A glimpse into any eastern handbook (Britton & Brown, Britton's Manual, Gray's Manual or Small's Flora), to say nothing of the monograph of Wolf or Rydberg's monograph, would have revealed *P. pumila* Poiret (1804). The western species needs a new name.

Altogether the second volume of Abrams's Illustrated Flora is a wonderfully interesting, not to say provocative, book. In general its treatments are careful and evidently sound and its new illustrations are attractive and evidently painstakingly accurate. It is bound to be in great demand and every one interested in good old-fashioned "descriptive botany" will need it.—M. L. F.

Volume 46, no. 546, iucluding pages 201–252 and plates 827–831, was issued 10 June, 1944.

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